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CONTENTS

THE NEW ENGLAND SURGICAL SOCIETY

Reflux of Duodenal Contents Through the Common Bile Duct. *Lincoln Davis* 313

Non-Tuberculous Spondylitis. *Dudley Carleton.* 320

THE NEW HAMPSHIRE SURGICAL CLUB

Preoperative Treatment. *James W. Jameson* 326

Staphylococcus Septicemia with Metastatic Osteomyelitis. *John P. Bowler* and *John J. Boardman* 327

Oxygen Therapy in the Treatment of Pneumonia and Postoperative Pulmonary Complications. *Robert S. Palmer* 330

The Incidence of Tuberculous Infection in School Children. *Henry D. Chadwick* and *David Zacks* 332

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Case 15071—Hoarseness and Dyspnea. *Richard C. Cabot.* Case 15072—What Part Did the Enema Take in This Fatality? *William M. Shedden* 338

EDITORIALS

Sixty-fourth Annual Report of the Trustees of the Boston City Hospital 347

Malpractice Again 347

The Pot and the Kettle 348

Resignation of Dr. Walcott 348

This Week's Issue 349

(Contents continued on next page)

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CONTENTS

(Continued)

BOOK REVIEWS

Diseases of the Nervous System: A Text-book of Neurology and Psychiatry. Smith Ely Jelliffe and William A. White 360
Fowler: A Dictionary of Modern English Usage 360
The Practical Medicine Series: General Medicine 360
Serum Diagnosis by Complement-Fixation. John A. Kolmer 360

CORRESPONDENCE

An Announcement and Request. Charles F. Wilinsky and Others 356
Official Actions by the Board of Registration in Medicine. Frank M. Vaughan 356
A Suggestion About Public Medical Lectures. Fred R. Williams 356

MASSACHUSETTS LEGISLATIVE NOTES 349
The Vaccination Hearing 350

MISCELLANY

American Society for the Control of Cancer Launches Campaign to Teach Women 329
Comparison of Disease Incidence in Connecticut with 1927 and Seven-Year Average Month Ending January 19 355
Expedition Leaves Harvard to Study Tropical Medicine in Yucatan 325
The Health Program of the Commonwealth Fund 353
Plans for Additions to the Springfield (Mass.) Hospital 337
Tuberculosis Abstracts 351
A Warning to the Trusting Doctor 337
What We Ask of Medical Science 352

NOTICE 356

RECENT DEATH 356

REPORTS AND NOTICES OF MEETINGS 357

SOCIETY MEETINGS 359

The Massachusetts Medical Society

The next Annual Meeting of the Massachusetts Medical Society will be held at the Copley-Plaza Hotel in Boston, June 10, 11 and 12, 1929

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NEW ENGLAND SURGICAL SOCIETY

REFLUX OF DUODENAL CONTENTS THROUGH THE COMMON BILE DUCT*

BY LINCOLN DAVIS, M.D., F.A.C.S.†

AN unusual but fearful complication of common bile duct surgery is the regurgitation of huge quantities of duodenal fluid containing digestive ferments through the choledochotomy wound. Two personal experiences with this distressing and dangerous phenomenon are I think worthy of report and consideration.

CASE 1. A. M. T.—E. S. 231723. Woman age 39, entered the Massachusetts General Hospital on July 17, 1919. She had had many attacks of gall stone colic during the past year accompanied by jaundice. At operation the gall bladder was found thickened and filled with stones. It was removed. There was a marked nodular swelling of the entire pancreas. The common duct was found dilated. It was opened and explored but no stone found. The duct was drained with a catheter. Immediately after operation there was a mild broncho-pneumonia which cleared up after a few days. The temperature then became sub-normal and remained so until the time of her death. Large quantities of thick, flocculent bile were discharged from the wound with digestion of the skin and breaking down of the wound. A drain connected with a water suction pump was placed in the wound and large quantities of bile stained fluid were aspirated into a bottle. In spite of vigorous administration of fluids under the skin, intravenously and rectally, the patient continued to fail and died on the 17th day. There was no autopsy.

Chemical examination of the material pumped from the wound failed to show pancreatic ferments, although there was marked digestion of the skin and soft parts.

CASE 2. E. W.—E. S. 283611. Male age 40, entered the Massachusetts General Hospital May 16, 1927 with a history of epigastric pain of about 1 month's duration. The pain was very severe on the day previous to entry. Jaundice had been noted for a few days. Examination showed definite jaundice, (icteric index 30), with acute tenderness and spasm in the region of the gall bladder.

On May 17, he was operated on by Dr. Horace Sowles. The gall bladder was thickened but not distended. It was removed and found to contain 2 small stones. The common duct was dilated and thickened. A very large soft stone was removed in fragments. A probe was passed through the common duct into the duodenum. The common duct was irrigated with a catheter, and a rubber tube was sutured into the duct for drainage. A cigarette drain was also introduced into the wound.

There was very profuse drainage of bile after operation. On the 10th day there was a marked change in the character of the drainage which resembled duodenal contents. Irritation of the skin and digestion of the wound edges were noted. He was immediately put on suction drainage. The amount of drainage was prodigious, reaching 124 ounces in one 24 hour period. Methylene blue given by mouth did not appear in the discharge. The patient's condition became precarious with frequent vomiting, low blood pressure and great weakness. N. P. N. 53 m. g. Blood chlorides 456 m. g. He was given salt solution and glucose freely under the skin and by rectum, and ox-gall by mouth. Gradually the drainage diminished, the wound began to clean up and the general condition of the patient improved. On June 11, he was discharged from the hospital. The wound was practically closed and there was no biliary discharge.

On November 14, 1927, he re-entered the hospital complaining of a constant burning pain in the epigastrium, during the last 2 months, becoming progressively more severe and accompanied by jaundice and clay colored stools. The icteric index was 30. Bleeding time 2 minutes, clotting time 13 minutes.

On November 15, he was operated on for the second time. The region of the common duct was buried in adhesions. The duct was finally exposed and found greatly distended. Upon opening it a large amount of thick bile poured out. The duct was explored with the fore-finger and a soft stone the size of an almond removed. A catheter was passed upwards to the hepatic ducts and downward into the duodenum and the common duct thoroughly irrigated. The pancreas was moderately thickened. The opening in the common duct was sutured about a No. 14 catheter which was inserted for drainage.

Convalescence was uneventful. There was profuse drainage of bile reaching 55 ounces in 24 hours, but never any suggestion of duodenal secretions. He was discharged on November 30.

On December 15, 1927, he was re-admitted to the hospital with an attack of agonizing pain in the right hypochondrium with jaundice and great prostration. The wound reopened with a profuse discharge of bile, and subsidence of pain. The sinus continued to intermittently discharge for 2 weeks, while he was kept under observation. There was slight jaundice (icteric index 5-10), and occasional pain.

On January 5, 1928, he was operated on for the third time. The common duct was exposed with considerable difficulty. It was enormously dilated. A large soft stone was palpated in a sacculated portion of the duct. This was scooped out in fragments. The common and hepatic ducts were thoroughly explored with the finger and irrigated. A No. 14 soft catheter was then passed through the common duct and into the duodenum for about 8 inches. The upper end of the catheter was cut off and it was anchored in the wall of the common duct with cat-

*Read at the meeting of the New England Surgical Society, New Haven, Conn., November 9, 1928.

†For record and address of author see "This Week's Issue," page 349.

gut sutures, according to the technique of McArthur. This was done with the purpose of maintaining drainage from the common duct into the duodenum and preventing the accumulation of detritus.

Another catheter of larger size was passed up to the hepatic duct and its end brought out through the wound. The common duct was sutured somewhat loosely about this tube. A cigarette drain was also inserted to this region. At the end of 48 hours profuse drainage from the wound was noted with some irritation of the skin. There was very little drainage through the catheter. He was immediately put on suction drainage. The discharge became more and more profuse reaching 108 ounces in 24 hours. It had a distinctly intestinal odor, bile color with much flocculent material in it. The wound broke down completely with signs of active digestion.

The patient showed the most alarming and striking prostration and emaciation, loss of appetite, vomiting and apathy. This was in spite of vigorous intravenous, subpectoral and rectal administration of salt solution and glucose.

On January 9, the 4th day post-operative, a jejunostomy was done under local anaesthesia and a catheter inserted by the Witzel method. The original incision at this time had completely broken down with a large amount of sloughing tissue. The opening in the common duct could not be seen, nor could any lesion in the duodenum itself. He was given a blood transfusion of 600 cc. The duodenal contents aspirated from the wound were re-introduced into the alimentary canal through the jejunostomy, also peptonized milk, egg albumin and saline were fed through the tube freely. The intake through the jejunostomy amounted to 120 ounces in 24 hours. There was remarkable and immediate improvement in the condition of the patient. The amount of duodenal drainage slowly decreased and became thinner and the wound began to granulate.

On January 12, N. P. N. was 44 mgm. Blood chlorides 517 mgm. At the end of 10 days he began to take nourishment well by mouth. On January 20th, the suction tube was removed, and the wound was packed with gauze. There was no further leakage of duodenal contents or bile. On January 24th, the jejunostomy tube was removed.

On February 4, 1928, the patient was discharged. There was still a small granulating wound. There was no pain or jaundice. X-ray showed the catheter still in the duodenum. On February 28th, the catheter was passed by rectum.

The patient was last seen on October 11, 1928. His general health was excellent. There had been no pain or disability. He was working daily at his trade of iron worker.

X-ray examination at this time of the gastro-intestinal tract was negative. There was no evidence of reflux of barium into the common duct.

A review of the literature of the subject discloses but scanty reference to this complication. It is well known that every other valve or sphincter in the human body does at times, under certain conditions, become incompetent and permit of the passage of contents in a reverse direction. It is only reasonable to suppose that the same is true of the orifice of the common bile duct.

While there is lack of complete accord among authorities as to whether or not the opening of the common bile duct into the duodenum is in the nature of a true muscular sphincter as described by Oddi, there is general agreement that owing either to the arrangement of muscle fibres at this point, or to the direction of the duct through the wall of the duodenum, there is a mechanism which allows of the discharge of bile into the intestine and at the same time prevents the back flow of intestinal contents into the biliary passages under ordinary circumstances.

Higgins and Mann[1] found in their experimental work on guinea pigs that occasionally when a test meal was injected into the duodenum without unusual pressure that some of the food passed directly into the common duct.

X-ray examinations with the barium meal in human beings have disclosed, under certain rare conditions, that barium from the duodeum may enter the common duct. McArthur[2] has reported a case where a reflux of barium from the duodenum entered the common duct thereby coating a stone lying in the ampulla, as shown by the x-ray.

While at the Massachusetts General Hospital we have as yet had no x-ray evidence of this reflux, Dr. L. B. Morrison of Boston has noted two instances of it in his experience.

CASE 3. A middle aged woman with clinical diagnosis of carcinoma of the stomach but without symptoms of biliary disease, showed on routine x-ray examination with the barium meal, in addition to evidence of extensive carcinoma of the stomach, a complete filling with barium of the common duct, hepatic ducts and many of the smaller radicles of the biliary system. The patient succumbed a few weeks later without operation. (Fig. 1.)

CASE 4. Mrs. L. B., age 51, patient of Dr. H. A. Nissen of Boston, through whose courtesy the case is reported. She had had 2 children, and 2 miscarriages. She had had 2 abdominal operations, for malposition of uterus, removal of tube and ovary and appendix. She had had in the past several attacks of colicky pain in the right hypochondrium with gastric indigestion. She had never been jaundiced. The chief complaint, however, at the time of her examination was arthritis involving the finger joints and neck.

In the course of a very complete physical examination, instituted by Dr. Nissen, Roentgenological examination of the gastro-intestinal tract was made by Dr. Morrison, on March 29, 1924. His report was as follows:

"Stomach of tubular type, of normal tone and peristalsis. There was a good antrum and the first part of the duodenum seen. As the barium passed out of the first part of duodenum into the second part of the duodenum, there was what I take to be a filling of the ampulla of Vater, and passage of barium up the common duct and out into the right and left hepatic ducts. The stomach emptied in normal time. At 6 hours the duct was full, and again at 24 hours there a residue, the head of the column being just beyond the hepatic flexure.

A second meal confirms the passage of barium into the right and left hepatic ducts.

Conclusions: There is a patent ampulla of Vater and common duct. No pathology seen in the gastro-intestinal tract otherwise except stasis."

Dr. Nissen reports that the patient has had no symptoms referable to the biliary tract since this examination. (Fig. 2.)

The only reference to reflux of duodenal contents through the common duct that I have been able to find in the literature is by E. A. Codman[3], who in 1908 in an article entitled "Chronic Obstruction of the Duodenum by the

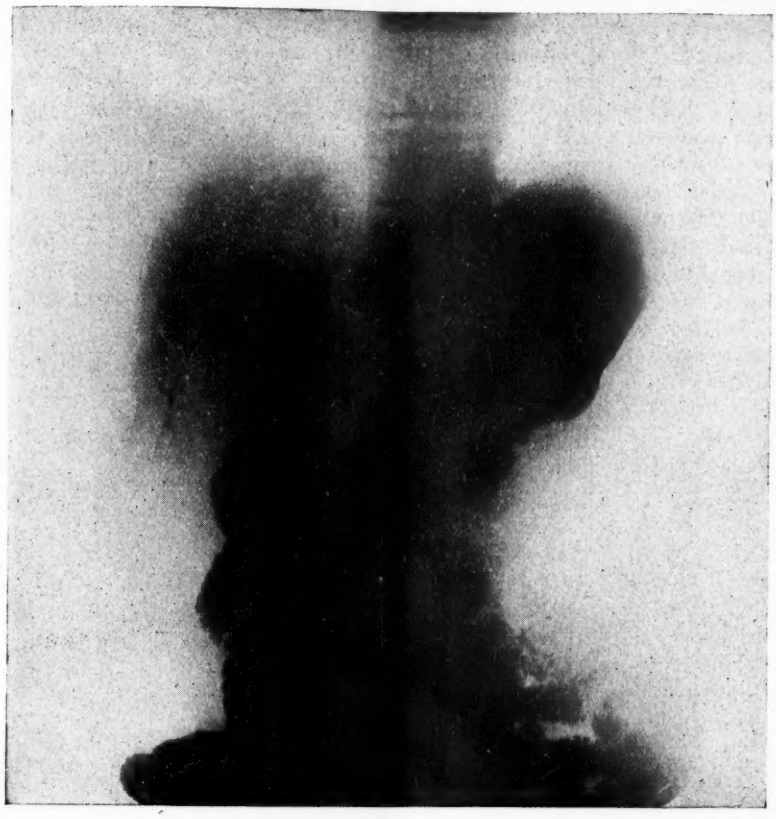

FIG. 1. Dr. L. B. Morrison's case showing extensive carcinoma of the stomach, with reflux of barium into the biliary duct system.

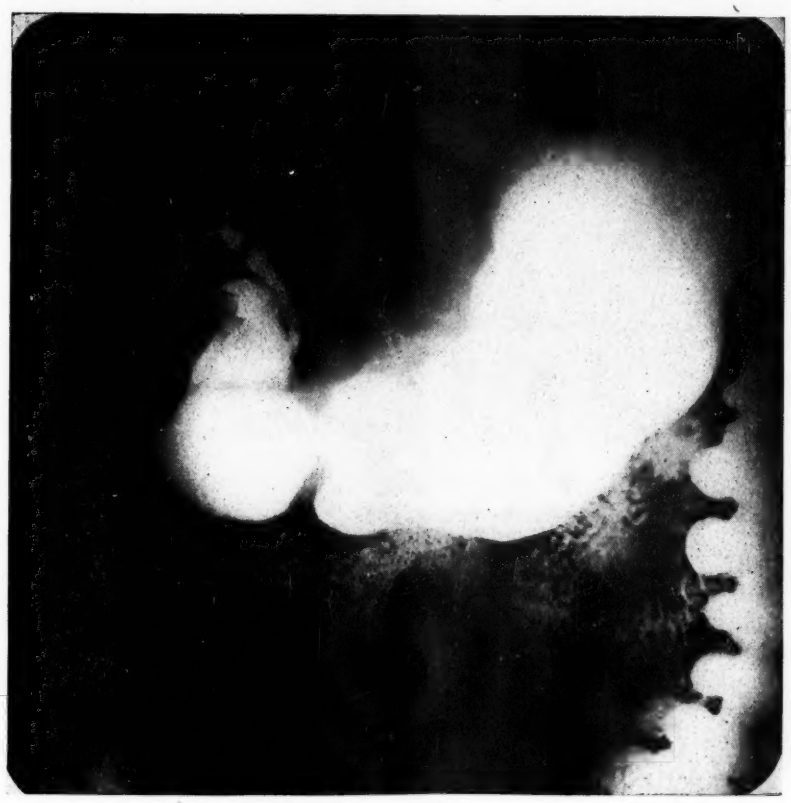

FIG. 2. Dr. H. A. Nissen's case showing reflux of barium into the common bile duct and hepatic ducts. X-ray by Dr. L. B. Morrison.

Root of the Mesentery'' reported a case of stone in the common duct with perforation and abscess. The patient was operated on at the Massachusetts General Hospital by Dr. Codman in 1907. The stone was removed at operation, the duct was probed into the duodenum and the wound drained. There was severe post-operative vomiting with asthenia. The dressings were constantly soaked with an abnormal amount of bile stained fluid with a peculiar sour smell, (there is, however, no mention of digestion of the wound). On the 11th day the patient seemed practically moribund. At a secondary operation the opening in the common duct was found and closed with 3 silk sutures. The suture of the duct held and there was immediate and startling improvement in the condition of the patient, who went on to complete recovery.

Codman gives his opinion, ''That the patency of the common duct due to dilatation allowed duodenal fluid to leak from the fistula, and at the same time the mesenteric obstruction created an intra-duodenal back pressure which was not overcome until the duct was sutured.''

Waltman Walters has given me the particulars of a case of his in which huge amounts of fluid drained from the common bile duct. This reached a maximum of 3860 c.c. of thin bile stained fluid in 24 hours. The amount of drainage gradually diminished and the wound healed. There was no evidence of digestion of the soft parts. Where did this huge amount of fluid come from if not from the duodenum?

We know that the amount of bile secreted in man in a state of health is given by physiologists as varying from 500 to 1100 c.c. of bile daily, Pincussen[4].

It may be objected that in none of these cases is reflux of duodenal contents through the common duct conclusively proven. It will readily be admitted that if a tube or catheter is passed into a dilated common duct and through the papilla into the duodenum a reflux of duodenal contents might well be expected, as occurred in my second case, just as jejunal contents escape from a jejunostomy in which a catheter is inserted into the bowel by the Witzel method, unless the catheter is clamped.

McArthur, who originated the method of passing a catheter through the common duct well down into the duodenum and suturing it in place for the repair of strictures or other defects of the common duct, reports 2 cases, however, in which the proximal end of the catheter was brought out of the wound onto the skin. There was no reflux of duodenal contents in these cases, in fact the catheter was used to introduce large quantities of salt solution into the intestine. This would seem to show that there is another factor involved in the production of reflux, namely, the amount of intra-duodenal pressure, which may be subject to wide variations. If the opening of the common duct into the duodenum is patulous, reflux will occur only when the pressure in the duodenum exceeds that in the common duct.

The observation of cases of dilatation of the first and second portions of the duodenum, and the occurrence of diverticulae in these two portions suggest that these segments of the duodenum are subject to greater pressure than the third and fourth portions.

Codman, in his original and ingenious study of chronic duodenal obstruction 20 years ago, suggested that the pressure of the root of the mesentery might well be the cause of hypertension in the first and second portions of the duodenum.

In my case the duodenal fluid did not flow out of the drainage catheter which was inserted into the common duct and thence upwards to the hepatic duct, but seeped into the wound presumably around the catheter where the duct was loosely sutured, causing digestion of the soft parts and skin. The catheter which was passed down into the duodenum and anchored within the common duct, in my opinion, did not pass through the third portion of the duodenum but folded back on itself within the second portion, as shown by the x-ray. (Fig. 3.) When this catheter was finally passed by rectum it showed a permanent v-shaped flexure.

If McArthur's valuable procedure is followed great care should be exercised to make sure that the catheter is guided beyond the third portion of the duodenum where the intra-duodenal pressure is presumably lower than it is in the second portion.

In my cases it might be objected that there may have been a direct duodenal fistula inadvertently made in freeing adhesions or as the result of trauma. I can only say that there was not the slightest evidence of this either at the time of operation or afterwards.

In Codman's case it might be objected that although the fluid undoubtedly came from the common duct as its flow ceased following the suture, yet there is no evidence that it contained digestive elements.

I can only affirm that I thoroughly believe from a close observation of the two cases that came under my care that reflux did actually occur. Furthermore, it is only reasonable to expect such an occurrence where the duct is greatly dilated and the sphincter of Oddi has become dilated and thickened from the impingement of a stone, plus consequent inflammatory changes, whenever the pressure within the duodenum is greater than that within the common duct. Then there is the x-ray evidence of the actual occurrence of a reflux of barium under certain conditions.

The citation of 3 such striking cases from a single hospital makes me believe that the condition is far more common than generally believed and that if attention is directed to the subject

there will be many similar reports forthcoming from other sources.

There have been many cases of true duodenal fistula reported complicating gall bladder and duct surgery.

Colp[5], in 1923, in an excellent article on "Duodenal Fistulae" collected 53 cases from the literature, and records 8 new cases from the Mt. Sinai Hospital. 23 of these cases followed some kind of operation on the biliary passages. His analysis seemed to show that in all the duodenal fistula was the result of direct or indirect trauma to the duodenum in the separation of adhesions, or through the pressure of gauze packs or tubes. In no case is reflux through the common duct suggested.

Cameron[6], in the same year reported 28 cases of duodenal fistula, collected from the literature, in all but two of which there was a history of direct trauma to the duodenum. In 2 cases the trauma was presumptively indirect, there being no suggestion of a reflux through the common duct in any of them.

The best treatment of this serious complication like all others in the domain of surgery lies in its prevention. Whenever a thickened, distended common duct is opened, great care should be employed in its closure; if it is deemed necessary that a tube or catheter be inserted for drainage the duct should be closed snugly and accurately about it to avoid leakage. The patency of the passage into the duodenum should be gently but accurately determined by the passage of bougies, but undue dilatation should be scrupulously avoided. Should the condition arise in spite of all care it must be treated like a true duodenal fistula. Codman achieved a brilliant success in his case by direct suture of the opening in the duct, but from my personal observation of the conditions present in these wounds, due to digestion of soft parts and sepsis, it is my belief that this feat will seldom be repeated.

The great desiderata to be obtained in treating this condition is the lessening as far as possible of the loss of vital secretions from the fistula, the protection of the skin and soft parts from the digestive action of those secretions

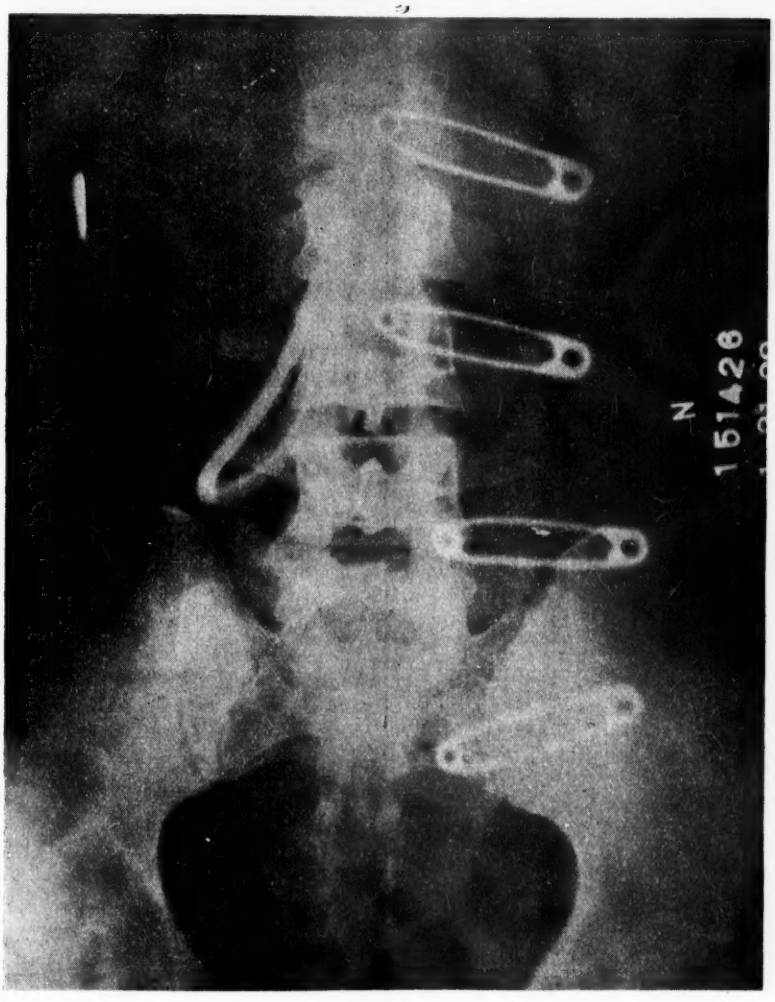

FIG. 3. Case 2. X-ray taken January 31, 1928, showing catheter apparently still in the duodenum.

which escape from the wound, and the maintenance of the nutrition and water balance of the body.

If the fistula is a small one and the discharge of duodenal contents slight, conservative treatment with tamponade of the fistula, avoidance of all feeding by mouth, and vigorous administration of salt solution and glucose by rectum, under the skin and intravenously may be successful.

Waltman Walters[7] has demonstrated the great loss of blood chlorides in duodenal fistula and the beneficial effects of sodium chloride introduced intravenously in restoring this loss, and controlling the toxaemia, in both man and animals. Walters has further conclusively shown that in animals, "Continuous loss of pancreatic secretion is fatal, whereas loss of bile and duodenal secretion is without lethal effect."

If under conservative treatment the fistula continues to discharge copiously and the patient shows progressive loss of strength and nutrition, more radical measures should be adopted without loss of time.

D. F. Jones in March, 1915, successfully treated a case of pancreatic abscess which discharged large amounts of digestive fluid after its evacuation, by means of a water suction pump.

Shortly after this Hugh Williams devised an electric motor pump by which continuous suction could be effectively maintained. Since this time either this apparatus or water siphonage has been employed with great satisfaction in all cases of high intestinal fistulae at the Massachusetts General Hospital. This technique has never been published but often publicly demonstrated at the hospital. Of late years the value of suction drainage has received wide recognition.

Cheever[8], in 1915, successfully treated a case of duodenal fistula by constant irrigation with sterile water. Kraske and Kehr[9] were early pioneers in attempting direct suture of duodenal fistulae. Their efforts were without success, as have been those of all their successors as far as I know.

E. Lilienthal[10], in 1901, suggested gastro-enterostomy for this condition. A. A. Berg[11] combined pyloric occlusion with gastro-enterostomy for the treatment of duodenal fistula. Although he was not successful in obtaining a cure this method has since been successfully carried out by H. C. Cameron[12], Knagge and others. The chief objection to the procedure is that it is an operation of considerable magnitude for patients in an already greatly reduced condition, and furthermore it has no influence on the loss of pancreatic juice and bile.

Einhorn[13] introduced a jejunal tube past a duodenal fistula thereby successfully feeding his patient and obtaining a recovery. This procedure is a brilliant tour de force which cannot be relied on as a routine, but might well be attempted as a preliminary measure.

Von Cackovic[14], in 1902, was perhaps the first to employ jejunostomy in the treatment of duodenal fistula. His patient did not, however, survive. Pannet[15] and Stuart McGuire[16] and others have since employed it with success.

S. Erdman[17] made an important contribution by combining with jejunostomy aspiration of the duodenal discharge and its reintroduction into the alimentary tract through the jejunostomy tube. The advantages of this technique are obvious; jejunostomy can be readily performed under local anesthesia in a clean field without shock, it provides the means of restoring to the alimentary tract the essential pancreatic ferments and highly important biliary secretions collected by aspiration from the fistula, it also permits of free feeding and the maintenance of bodily nutrition and water balance. Altogether it is, I believe, by far the best treatment yet devised for duodenal fistula. It should, I believe, be used also in those distressing cases of common bile duct drainage in which large amounts of bile are discharged from the wound, without evidence of duodenal reflux, but accompanied by progressive loss of strength, vomiting and prostration which, unless checked, frequently go on to a fatal termination.

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Discussion

Dr. David Cheever: *Mr. Chairman and Gentlemen*—This recital of cases and observations and review of the literature by Dr. Davis are certainly most interesting, and their importance is limited only by the rarity of the condition. That it is rare is fairly evident be-

cause Dr. Davis has found only three cases in the records of the Massachusetts General Hospital (operative records), and only two instances showing reflux of the duodenal contents by x-ray examinations, or rather those came from the practice of Dr. Morrison and there were no instances in the x-ray records of the Massachusetts General.

When Dr. Davis was struggling with his second case, which he carried finally to a most successful termination, he spoke to me about it and asked me if I had ever seen such a condition, and I thought that I recalled a case which was in many respects similar, but on carefully reviewing that case I find that it was not one, and I may say therefore that a somewhat incomplete review of the cases of gall-bladder surgery occurring at the Peter Bent Brigham Hospital fails to show any similar case, and a tentative statement from the x-ray Department is to the same effect. Therefore, we really have only six cases found by Dr. Davis in the entire literature and in his experience and in that of his colleagues.

Of course the terrible potency of the activated secretion of the duodenal contents leads one to carry out a procedure which permits the escape of those contents with a great deal of hesitation, but it would appear, it seems to me, that the mucous membrane of the common duct and of the biliary system and of the lining of the gall-bladder must have more or less of the same protective quality,—a quality which protects it from the digestive action of the duodenal contents,—which the mucosa of the duodenum itself has, because I would remind you that we very frequently perform the operation of cholecystoduodenostomy, which is equally efficacious as cholecystogastrostomy, and a great many cases have been reported of anastomosis of the common bile-duct which has been obstructed by a stricture, to the duodenum, and neither gall-bladder nor duct under those conditions appear to suffer.

My own interest in this is very great because it happens that I have just about completed the preparation of a minor communication in which I am prepared to advocate very strongly the routine dilatation of the papilla of Vater in cases of calculus in the common duct, and you will recall perhaps one sentence in Dr. Davis's paper, toward the end, where he very properly says, as a result of his experience that he recommends that catheterization of the papilla shall be carried out with great care and that any undue dilatation of the papilla shall be scrupulously avoided. Since 1913 I have been carrying out, as a routine, the dilatation of the papilla in suitable cases. There is a great paucity of information about the normal caliber of the papilla. I used to investigate it in the dissecting room and then in the living, and I came to the conclusion that about No. 10 French was the normal calibre of the papilla; that is, a No. 10 French olive-tipped bougie passed with slight difficulty, indicating that it was a good fit.

Acting on that assumption, when I have found calculi in the common duct, whether or not I felt certain that I had removed them all, I have carried out the regular routine dilatation of the papilla up to 14, 16 and sometimes No. 18 French, and have always accompanied that by a washing out of the duct, and I have never had the experience which Dr. Davis recounts.

There is quite a little about dilatation of the papilla in the literature, especially among the Germans. Hofmeister, Pototschnig, Rost, von Haberer, Enderlen, Walzel, Lorenz, Körtze, Hotz, and some others have written articles within the last fifteen years in which they advocate the same procedure as I have done. Mine was quite independent. No doubt it is a very obvious thing to do and I have no doubt it has been carried out by all of you. Some of these gentlemen are very radical. One advocates opening the duodenum, slitting the papilla, suturing back the flaps of mucosa in order to maintain the patency of the papilla with absolute certainty, and there are no instances reported in their communications of a reflux of the duodenal contents with the serious consequences which Dr. Davis recounts. There were a number of deaths reported, but they were due to peritonitis. One was definitely due to a peritonitis due to a traumatism of the wall of the duodenum owing to the fact that the bougie entered a diverticulum of the common bile-duct and then penetrated the wall of the bowel, and that very easily would permit of such a reflux.

That is all the information I have on the subject. I have felt that my comparative immunity to the recurrence of stones in the common duct after this type of exploration has been due in large part perhaps to this systematic carrying out of the bouginage of the papilla, a reflux irrigation of the bile passages and a dilatation of the papilla which permitted detritus which might remain to pass, and while I admit a good deal of anxiety owing to the cases which Dr. Davis reports, I felt that without any personal ill results from my procedure, I don't think I shall give it up until I have had some such ill results.

As to any technique which I may have carried out with the systematic dilatation, which may have had any bearing on preventing the reflux of the duodenal contents which I feel undoubtedly occurs at times, I may only say that it is my regular habit to place these patients with common duct drainage in the Fowler position, which of course tends to make the fluid contents of the duodenum fall by gravity down into the third portion and to pass onward. Then, of course, I am extremely careful (as everybody else is) to close carefully the wall of the common duct around the drainage tube.

In conclusion I would say that undoubtedly

this reflux of duodenal contents occurs; that it is extremely serious when it does occur, leading inevitably to a fatal result unless it can be obviated by the treatment which Dr. Davis has outlined. It probably occurs as a combination of increased intraduodenal pressure, perhaps from the root of the mesentery across the third portion of the duodenum, combined with some undue patency of the papilla, and it can possibly be avoided by the measures which I have mentioned.

DR. JOHN HOMANS: I should like to ask Dr. Davis how he can be sure that the secretion which came from the wound was not principally the pancreatic secretion, on the basis that the activated pancreatic secretion mixed with bile would give a perfect imitation of the duodenal contents. It seems to me that there are two different problems. First did the pancreatic duct open with the bile duct behind the papilla whereby the pancreatic secretion could escape with the bile, or, second, was it actually the duodenal content that came out?

DR. A. C. RICE: I would be glad to send in the reports of two cases we have recently had at the Springfield Hospital. One died and one recovered. The one that died was drained by a catheter, which we thought possibly had something to do with it. The second one was drained by a T-tube and went through the same course but got well, and, contrary to Dr. Davis's experience, the secretion in these two cases all came out of the tubes. One got well when the drainage stopped.

DR. DAVID CHEEVER: In answer to Dr. Homans's suggestion, is it not true that the combined pancreatic juice and bile have very little digestive action until they are activated by the enzymes secreted by the duodenum? That, together with the very great volume of discharge described by Dr. Davis, made me feel by his observation that it came from the duodenum was almost certainly correct.

DR. LINCOLN DAVIS: I feel sure that more of these cases will be reported, and I dare say a number of them have already been reported, but it is very difficult to find them in the literature. You can only find them by their being incidentally mentioned in the reports of cases of common duct surgery.

I am very much interested to hear Dr. Rice say that he has had two cases and, as I say, I think there will be a good many more reported.

As to the question raised by Dr. Homans, in both these cases I had the fluid examined for pancreatic ferment but it could not be detected. However, there was a very good clinical test in the fact that it digested the soft parts of the wound and the skin most remarkably. I think the reason to believe that duodenal fluid escaped from the wound, in addition to the pancreatic ferment, is on account of the enormous amount of discharge. I don't know just how much pancreatic juice is secreted in twenty-four hours in health. The amount of bile is about 1000 c.c. in health. We were getting three times that much fluid. Where did this enormous amount of fluid come from, if not from the duodenum?

When Dr. Sowles operated the first time, he gave some methylene-blue by mouth and it didn't appear in the discharge. I can't explain the mechanism of duodenal reflux; I don't pretend to understand it. There is something in addition to the duct being patulous, because in the cases of McArthur, where he put a catheter down into the duodenum there was no reflux. There must be an increased pressure in the duodenum as well. The mechanism has not been worked out at all. I reported these cases because of their interest, and also in the hope that a general discussion of the subject might throw additional light on the matter.

NON-TUBERCULOUS SPONDYLITIS*

BY DUDLEY CARLETON, M.D., F.A.C.S.†

DURING the past few years there has been a series of spine cases brought to our attention, all of which have followed some acute pulmonary infection. In four cases the Spondylitis, with x-ray evidence, has occurred in 2 to 5 months after the initial infection.

In this group there are three cases with lumbar abscess and two without abscess. All cases are in adults and marked improvement has been accomplished in an average of one year.

In two of the abscess cases my house staff reported pneumococcus and staphylococcus aureus cultures. One case no culture could be grown. All three cases were cultured at primary evacuation of abscess.

The x-ray shows an extensive destructive osteitis of both body and posterior structures of vertebra. The bony destruction differs from tuberculosis in that it attacks the posterior portions of the vertebra more definitely than the body. In one case the x-ray diagnosis was probable carcinoma because of the very marked bony destruction. In one case there was spastic paresis of legs due to posterior irritation of cord.

*Read at the Annual Meeting of the New England Surgical Society, New Haven, Connecticut, November 9, 1928.

†For record and address of author see "This Week's Issue," page 349.

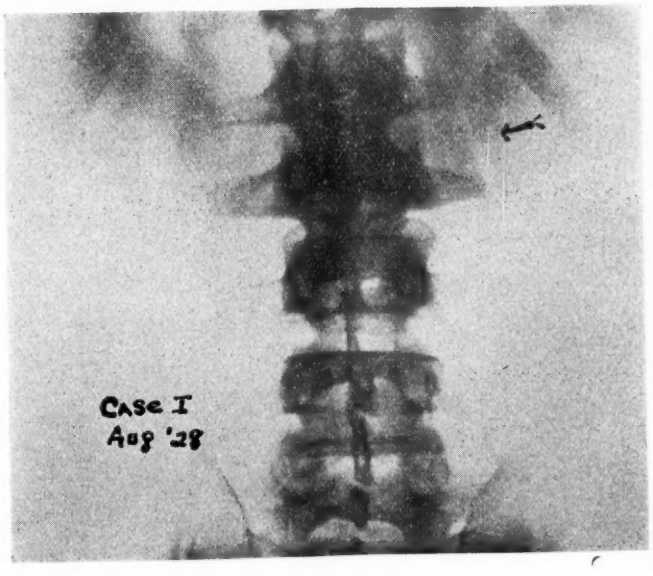
With this introduction I report five cases as briefly as possible:

CASE I.

Male, age 21 years, admitted to the hospital January 27, 1922, with diagnosis of left pneumonia followed by multiple abscesses and empyema. Discharged March 3, 1922. Readmitted May 18, 1922, with Lumbar abscess, right. X-ray—osteitis 1st lumbar vertebra. Operation May 19, 1922, much pus evacuated. Culture pneumo-staphylococcus. Patient discharged in plaster cast with window for drainage, May 23, 1922. Patient treated at home for some time but during July admitted to Wesson Memorial Hospital for incision of a left lumbar abscess. During the summer treated at home on a Bradford frame. October 9, 1922, admitted to hospital for plaster jacket, right abscess healed, left slight discharge. Patient up and about with jacket. Patient steadily improved, wound healed, jacket replaced by brace. For last three years patient has worked steadily without any back support. Now runs a gas station near Old Deerfield. Patient cut forty-five cords of wood last winter and is well.

CASE II.

Male, age 31 years. During February 1924 contracted an infectious bronchitis. In March noticed a beginning backache. Admitted to hospital June 9, 1924, with diagnosis: Spondylitis with lumbar abscess. Tumor size of child's head left side. X-ray report—destruction 12th dorsal and 1st lumbar vertebrae, probably malignant metastatic process. Operation June 11th. Lumbar incision, about four quarts of pus evacuated. Culture at operation, pneumococcus. Later culture from sinus staphylococcus. Discharged Nov. 16, 1924 with plaster jacket. Sinus slight discharge. July 1925 went home to Ireland wearing brace, sinus not quite closed. In December 1926 reported gain of weight, sinus slight discharge, wearing support and walking without discomfort. November 1928 report that sinus still slight discharge, motions of spine cause no pain, can walk five or six miles and ride a bicycle. Wishes to remove brace.



CASE III.

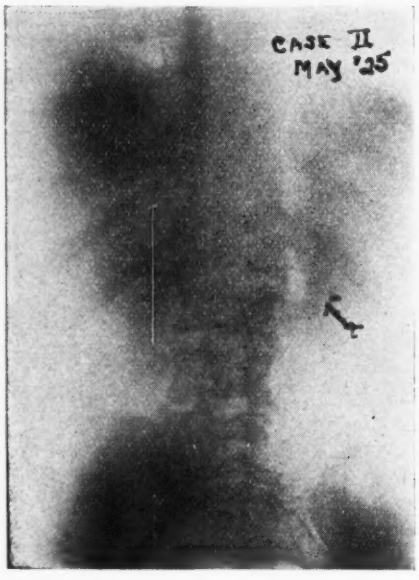
Female, age 50 years. Came home from vacation September 1925 with pulmonary infection which did

not clear up and kept patient in bed. Constant temperature between 100-103 and increasing back pain. X-ray taken for pulmonary disease demonstrated spondylitis. Physical examination showed much weight and has the appearance of a healthy woman. Plaster jacket replaced by reinforced corset. Today sinus healed. X-ray shows sacralized 5th lumbar.

marked kyphosis at 8th dorsal. Patient put across bed board for one week then plaster jacket applied with much correction of deformity. Patient out of bed with a jacket for three months which was then replaced by a brace. Patient discarded brace in July 1926 and has been well since. Most rapid case.

Case V.

Female, age 21 years. Admitted to hospital March 1927. Diagnosis, dorsal spondylitis with spastic paresis both legs. In December 1926 left her work, was treated for broncho-pneumonia four weeks when the acute condition subsided and patient began to complain of backache between shoul-

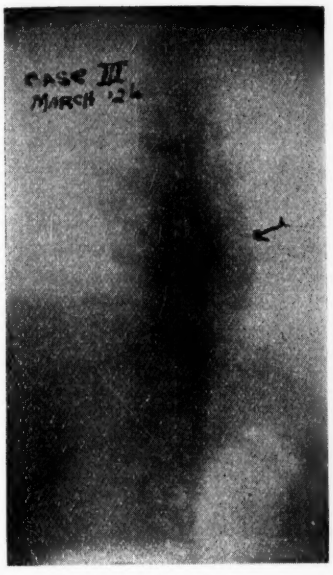


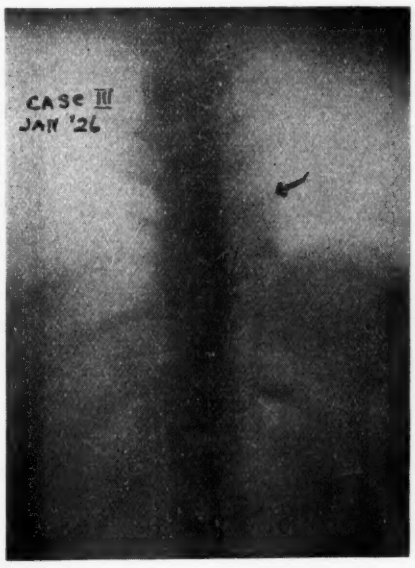
Case IV.

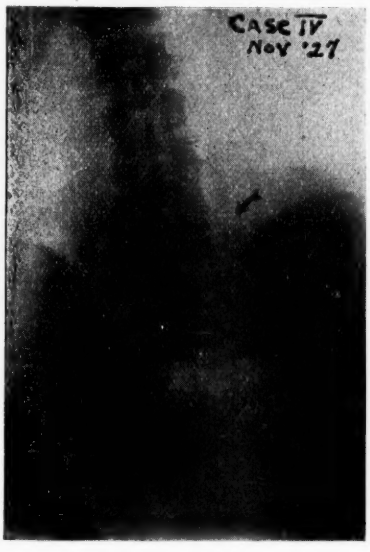
Female, age 28 years. Admitted October 6th, 1926. Diagnosis lumbar spondylitis with right lumbar abscess. Two years prior to admission was treated for a very persistent pleurisy. For last few months has had backache increasing in severity. X-ray shows 5th lumbar osteitis. Operation October 7, 1926. Incision and drainage. No growth from culture. Discharged Nov. 10, 1926, with plaster jacket. Considerable discharge from sinus. November 1927 sinus nearly closed, patient has put on ders. Gradually a spastic contraction of both legs and dorsal kyphosis developed. After admission to hospital, patient was treated on a Bradford frame with Bucks extension to reduce contraction of legs, followed by plaster cast to hold legs in extension and abduction. X-ray reported osteitis 5th and 6th dorsal vertebrae. In October 1927 patient was fitted to head and back brace and began to use legs. Today patient is walking without difficulty and has discarded brace. No return of back pain or other symptoms.

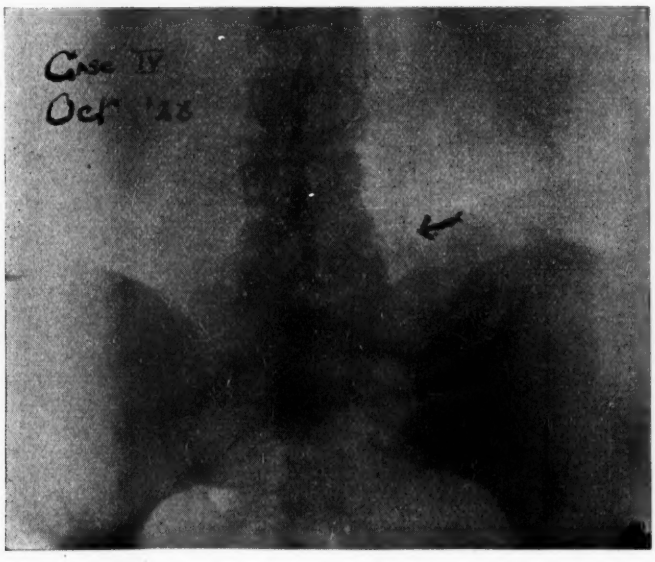
From the foregoing cases I wish to point that the incident of Tuberculous Spondylitis in adults must be very small in comparison with that due to mixed infection probably of pneumococcus origin.

That the x-ray picture is a more general destructive process than the classical body destruction due to tuberculosis.









That the patients not only recover but do so in a much shorter period than do those with Tuberculous Spondylitis.

That all cases have some type of pulmonary infection preceding the onset of the back lesion. This fact, and the finding of pneumococcus in the pus of two cases leads me to make the diagnosis of primary pneumococcus or mixed infection.

Lantern slides.

Discussion

Dr. Geo. W. Hawley, Bridgeport, Conn.: Dr. Carleton was good enough to send me a copy of his paper and I think the subject he has presented is a most interesting one.

We are all familiar with the common types of secondary hematogenous infections of bone as seen in acute osteomyelitis, where the blood culture so often gives a positive growth in the early stages and before the x-ray shows any destructive process, in contrast to the more chronic infections where the culture shows growth only after many days, or none at all, according to the specific organisms or their number and virulence.

It is my belief that certain organisms have a selective attraction for osseous tissue, very much as Neusser explained the tendency for metastasis to bone in prostatic and mammary carcinoma, and it may also be true that strains of the same bacteria have a stronger affinity for bone than others.

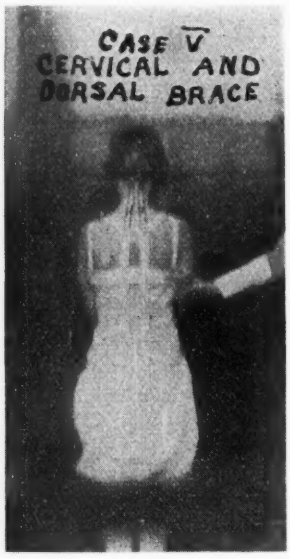
Bone, we know, is fertile soil for the tubercle bacillus as well as the staphylococcus and streptococcus, also other organisms, including the

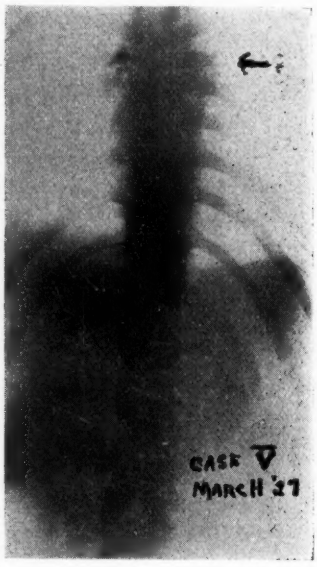
gonococcus, the typhoid bacillus and the pneumococcus.

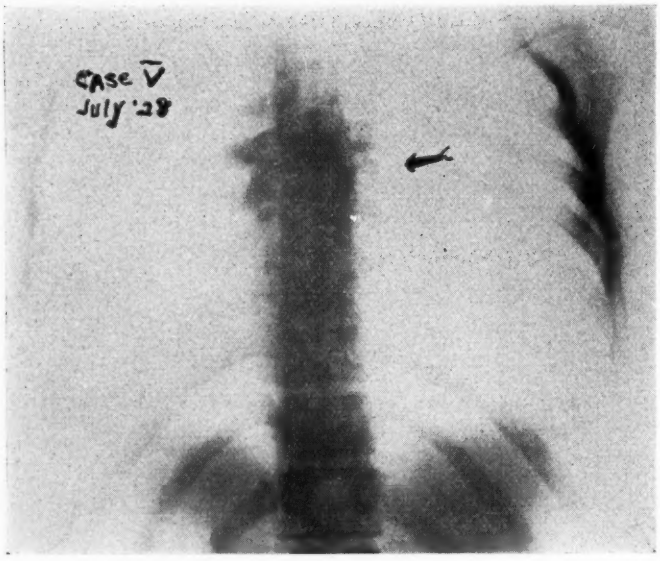
I have seen a number of cases of non-tuberculous spondylitis—some following typhoid, tonsil infection, osteomyelitis of the long bones, an abscessed tooth, and in one case cervical caries following a gall-bladder infection some years after typhoid. In all these cases there was only a moderate degree of bone or disk destruction.

It has not been my good fortune to have seen as many cases of pneumococcus spondylitis as Dr. Carleton, or I have failed to recognize them. My experience has been limited to pneumococcic infections of the joints of the extremities.

The only case I recall in which a definite diagnosis was made of pneumococcic spondylitis occurred in a boy eighteen years of age who gave a history of pneumonia in January 1926, followed by some pain and weakness of his back covering a period of two years. In January 1928 an x-ray examination was made which showed erosion of the adjacent anterior margins of the second and third lumbar vertebrae. This was diagnosed tuberculosis but there were no clinical signs of Pott's disease and no kyphosis. In this case, support of the spine resulted in recovery in six months with complete bone regeneration.







To me the most interesting features about the cases reported by Dr. Carleton are:

1. The fact that bone destruction occurred in the posterior segment of the neural arch as well as in the vertebral bodies and disks.
2. The large size of the abscesses reported.
3. The prompt and complete healing of these cases of pneumococcus osteomyelitis in contrast to the cases of staphylococcus osteomyelitis.

4. The effectiveness of the treatment employed and the benefit of immobilization, which fits in so well with Orr's theory of immobilization in the treatment of osteomyelitis in general.

5. The value of the routine culture of infective material.

6. The low percentage of physical disability in these cases in spite of the extensive deformities.

7. It appears that all of Dr. Carleton's cases were active infections which raises the question of the frequency of the subacute and latent types.

In conclusion I wish to thank Dr. Carleton for calling attention to this type of spondylitis and I congratulate him on his successful treatment and the results obtained.

Dr. R. B. Osgood: Dr. Allison, I am sorry to say, has allowed me to come to the meeting in his place because an exercise at the Medical School made it necessary for one of us to be in Boston today. I do not know what he intended to say in his discussion of this paper, but I think Dr. Carleton's paper is a very timely one. Only within three days have I had a case sent me, of a woman who had a general rounded kyphos in her spine, without spasm connected with it. An x-ray has been taken which showed a certain amount of apparent change in the vertebrâ at about this region and in other portions of the spine. On that x-ray and the symptoms of pain in the back, a very well qualified surgeon, without ever having seen the patient, had made a diagnosis of tuberculosis and had planned to come some miles from his own city, ready and expecting, and apparently determined, to perform a fusion operation on the spine.

It seems to me, gentlemen, that we must not jump at conclusions in that way. There are probably many more cases of arthritis of the spine, and perhaps as many of these low-grade osteomyelitic cases, than there are of tuberculosis. In the state of Massachusetts if you study the curve of the occurrence of bone and joint tuberculosis, you will find that in the last twenty-five years it has dropped with such definite precipitousness that by 1935, if the curve goes on in the same way, there will not be any bone and joint tuberculosis in the state of Massachusetts. We shall have it, of course. The curve will begin to get level again, but very low down.

In the old days at the Children's Hospital in Boston, I think it is fair to say that half of the fifty beds were occupied by tuberculous cases of bone and joint disease. We have made complete visits lately on separate occasions and not found a single case of bone and joint tuberculosis in the wards. Therefore, gentlemen, it bids us take warning to make our diagnoses accurately, and it bids us also to give consideration before we hastily, and in these cases I believe perhaps unwisely, advise a fusion operation in a patient suffering from spinal disease. (Applause.)

Dr. Dudley Carleton: I have but very little further to add except to concur in Dr. Osgood's opinion about tuberculosis. At the beginning of my practice about thirty years ago I used to see, I don't know how many, but I had about twenty-five tuberculous spines in children, in my practice at Springfield all the time. I think I saw one case last year, one case the year before, and no cases before that. No cases are in the Springfield Hospital at this time. There are very few cases that prove to be tuberculous hip disease today, and there were many twenty years ago. Of course, Dr. Osgood is right, we have no tuberculous cases now.

EXPEDITION LEAVES HARVARD TO STUDY TROPICAL MEDICINE IN YUCATAN

May Throw New Light on Causes of Collapse of Mayan Civilization—Sailed From New York January 31, 1929

An expedition which may throw new light upon the Mayan civilization, has just started for Yucatan, from the Department of Tropical Medicine of the Harvard Medical School and School of Public Health, it was announced at Harvard February 1. The party left New York yesterday for Progresso on the Ward Line Steamer "Mexico".

The immediate purpose of the expedition is to make a medical survey of the population of a section of that country. The Carnegie Foundation of Washington has appropriated funds and will bear a portion of the expense of the Expedition.

The region selected is about Chichen Itza where is situated a famous sacrificial well of the aborigines. There are villages of mixed population in the neighborhood and others of practically pure-blooded Maya Indians. Little is known of the diseases of these people and it is hoped that the study may throw light upon the causes of the complete collapse of the Maya civilization which followed close upon the Spanish conquest.

The "Yucatan Medical Expedition" will have its headquarters among the ruins of the ancient city at Chichen Itza where, for some years, the Carnegie Foundation has maintained a station for archeological research. Mr. Sylvanus G. Morley, who is now on the ground, has charge of the Station and of the archeological work being done there. Mr. A. V. Kidder of Andover made the preliminary arrangements with the Department of Tropical Medicine on behalf of the Foundation.

The personnel of the Medical Expedition is as follows: George C. Shattuck, M.D., in charge of the Expedition; Joseph C. Bequaert, Ph.D., Entomologist; and Jack H. Sandground, Sc.D., Parasitologist, all of the Department of Tropical Medicine of the School of Public Health; Kenneth Goodner, Ph.D., Bacteriologist, of the Department of Bacteriology of the Harvard Medical School, and Mr. Byron L. Bennett, Laboratory Technician.

THE NEW HAMPSHIRE SURGICAL CLUB

PREOPERATIVE TREATMENT*

BY JAMES W. JAMESON, M.D., F.A.C.S.†

THE satisfactory outcome of a surgical operation does not depend entirely upon the operation itself, but to a great degree upon the preoperative and postoperative treatment associated with it, consequently if proper treatment is neglected either before or after operation convalescence is more prolonged and complicated, and the result less satisfactory. It goes without saying that all that is possible should be done to establish a correct diagnosis before operation.

To patients an operation is a serious affair, and is usually looked forward to with considerable apprehension, although occasionally this is not the case. It is necessary therefore to change their attitude and eliminate fear by a satisfactory explanation regarding their condition and make them feel that whatever is to be done is for their good, and to help them regain their strength. We who are so accustomed to operations are apt to forget that the patient's standpoint is quite different from our own.

Hospitalization of patients for several days prior to operation is often beneficial and in dehydrated, gastric, cardiac and jaundiced cases is absolutely essential. This period allows for a satisfactory preoperative preparation. During this time it is wise to keep them away from the talkative patient who tells them of the smothering sensation of the anesthetic and the nausea following; the number of hypodermics they required to make them sleep, and the terrible gas pains they had, or of a friend who died following an operation for a similar condition. Their preoperative period should be made as pleasant as possible and they should not be allowed to pass sleepless nights. Their diet and elimination should be regulated during this time. This period allows them to become used to the ways and noise of the hospital, but is more important in eliminating the possibility of opating upon patients with unrecognized respiratory infections.

The practice of hurrying non-emergency patients into the hospital and operating upon them before they have a chance to change their mind is distinctly bad, for in the majority of cases it means that a satisfactory complete examination has not been made. With lack of proper preparation and incomplete examination complications are more apt to occur.

While many patients are in good general condition, we encounter those with varying degrees of anaemia which add to the seriousness of an operation. In many, the blood picture may be improved by the administration of iron, by mouth or hypodermically, forced feeding of liver, exposure to direct or artificial sunlight and rest. In other cases, like bleeding fibroids, rest in bed, with administration of pituitrin hypodermically will check the bleeding and operation can be arranged to anticipate the next period. In those where operation is imperative and sufficient time cannot be allowed to allow them to build up their blood, a transfusion must be resorted to, and there is no question that the direct method of giving whole blood is the best. No patient with hemoglobin lower than 45% should be operated upon without transfusion and if the operation is long and complicated a transfusion will be beneficial.

Dehydration due to vomiting, suppuration and fever may exist without anaemia and can best be dealt with by saline hypodermoclysis or by saline or glucose solution 2-5% by rectum. Transfusion is not usually necessary. If possible no operation should be done during the extreme hot weather on account of the rapid loss of fluids and the inability to replace them, especially if there is much postoperative vomiting. It is occasionally necessary to operate upon a jaundiced patient, but if the operation can possibly be postponed until the jaundice clears up it is wise to do so. For those who are jaundiced blood coagulation time should be determined and calcium chloride administered in 5 cc. doses of a 10% solution intravenously for three days before operation. It is probably needless to say that extreme care should be exercised in hemostasis.

Cardiac cases requiring operation should be kept in bed, if possible a few days before operation to rest the heart and relieve edema, and the administration of digitalis, preferably one of the hypodermic varieties, should be given at least twenty-four hours before operation. Ordinarily a compensated heart, when there is little associated dyspnea on ordinary activities, stands ether well but if the operation can be done under local anesthetic it is preferable.

Diabetic patients should not be operated upon until their sugar has been controlled. Formerly this was very difficult and at times impossible but now with the use of insulin many cases can be satisfactorily operated upon which previously were attended with a high mortality.

The treatment of toxic thyroid cases with Lugol's solution and then hospitalization before operation has decreased the operative mortality a great deal, and has also decreased the serious reactions following operation.

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†For record and address of author see "This Week's Issue," page 349.

Gastric cases, which not infrequently are partially dehydrated, should not be operated upon until their fluid balance is established. Special attention should be directed to oral cleanliness, and non-irritating mouth washes should frequently be used, a weak solution of sodium bicarbonate being as satisfactory as any. Where marked gastric retention is present, lavage should be done the day before operation and nothing except fluids without milk given after it. It is wise not to give any fluids, except water, for several hours before operation, although small sips of water may be necessary to allay thirst.

Catheterization, or the introduction of an indwelling catheter, and bladder irrigation may be done before operation on cases of prostatic obstruction to clear up the accompanying cystitis, but usually suprapubic drainage is a better preliminary to prostatectomy. Urinary antiseptics, urotropin, caprokol, or pyridium, are helpful adjuncts but are not satisfactorily used alone.

In all cases a satisfactory cleansing of the intestinal tract is necessary, and this, especially necessary in the cases which had had gastro-intestinal x-ray examination with barium. It is best accomplished by the administration of laxatives several days before the operation, supplemented, if necessary, by enemata. Active purging by strong catharsis on the day before operation is to be condemned as it results in the loss of too much of the body fluids, causes an irritability of the intestinal tract, and makes the patient generally uncomfortable. Of course, in rectal cases it is necessary to give enemata on the day of the operation to insure a cleansing of the lower bowel.

In the usual preoperative cases I think that a patient should be allowed a light diet the day before operation and a soft easily digested meal the night before but their meals should be moderate instead of large. They should take sugar in some form 12 to 18 hours before as it is apparently beneficial in preventing postoperative vomiting. I usually advise the patient to eat several pieces of candy or give them an ounce of simple syrup the night before operation. This is supposed to control acidosis but whether it does or not I cannot say; clinically there is no question that patients who have had sugar before operation are very much freer from vomiting than those who have not had it. Starvation for 24 to 36 hours before operation is apt to result in the accumulation of gas in the intestine and cause more postoperative discomfort.

A patient who has had a good night's sleep is in much better condition to undergo the mental strain of an operation than one who has spent most of the preceding night wakeful and wondering as to the outcome of the operation. To insure this a sedative like chloretone, medinal or luminal is beneficial and for those patients to whom the administration of one of these sedatives is contra-indicated thirty or forty grains of triple bromide in three or four ounces of water by rectum late in the afternoon, will ordinarily give them a good night's rest. Children do not ordinarily need a sedative.

The majority of surgeons give hypodermics three quarters to an hour before operation for its quieting effect on the patient and as an aid to the anaesthetist. Ordinarily this is morphine and atropin, or possibly scopolamine and morphine. I have used morphine and atropine almost entirely with satisfactory results and have seen no reason to change to some of the other preparations, but I think the amount of morphia should be regulated according to the size of the patient and her or his condition. A large dose of morphia to a small debilitated patient will so slow down the respirations and make them so shallow that it is a source of danger, from respiratory complications, to the patient and of worry to the anaesthetist.

There are then three things which to my mind are responsible for a great deal of the postoperative discomfort and these are:

1. Too active catharsis.
2. Too little food.
3. Too much morphine.

STAPHYLOCOCCUS SEPTICEMIA WITH METASTATIC OSTEOMYELITIS*

BY JOHN POLLARD BOWLER, M.D., F.A.C.S.,† AND JOHN J. BOARDMAN, M.D.†

TO septicemia metastasizing to long bones has been given the term, infective osteomyelitis. In many of these cases the septicemia has *not* been definitely demonstrated. In the case to be reported the septicemia *is* definitely proven prior to the onset and recognition of its localization in the long bones.

The diagnosis of osteomyelitis is among the group of much discussed topics. This case is reported from the standpoint of treatment, *none* of which is original, but representative of the correlation of relatively new or recently renewed principles. But few conditions call for more immediate and extemporaneous methods of management. The *rapidity* of onset, the explosive entrance of new factors, the confusing blending and overlapping of the signs of multiple lesions, and the extreme toxicity of the patient call for daily and hourly interpretation

*Read at the Thirty-first Annual Meeting of the New Hampshire Surgical Club, Jackson, N. H., September 24, 1928.

†For record and address of author see "This Week's Issue," page 349.

and action. The whole situation renders perfunctory any preconceived or arbitrarily outlined procedure of surgical management.

Miss E. M., age 13, was admitted to the Surgical Service, Mary Hitchcock Memorial Hospital on July 27, 1927. The family and past histories were entirely negative. The patient had been in a girls' camp for four weeks, active, apparently well, and taking part in all of the camp activities. Two days before admission, she had complained to the camp nurse of general malaise and fever. The temperature was 102, general history negative. On the following evening, the patient was seen with temperature 103. The general physical examination was entirely negative except for a small, irregular abrasion on lateral surface of left knee joint with slight sero-purulent discharge. Four days prior to the onset of temperature, the patient had received this abrasion by striking the knee on the swimming float, but had not reported the accident. There was no adenopathy, nor pain. Patient was a well developed, well nourished, healthy appearing child.

On admission to the hospital, white blood count was 16,560, differential count normal, urine showed albumen 1. Blood was taken for culture and grouping. On the following day, the temperature rose to 103.5 with pain in region of left shoulder, which twenty-four hours later showed redness and tenderness over the outer third of the clavicle. At this time, 8 c.c. of 1% Mercurochrome were given intravenously, followed in ten minutes by moderate urticarial reaction. This same phenomenon occurred on the following day after a second mercurochrome injection. Mercurochrome was then discontinued. On the third day, the blood culture was reported as negative, another blood culture taken, which was reported on the fifth and sixth days as positive for staphylococcus aureus, and a vaccine was started. During this time, temperature and white count were increasing and the patient appeared extremely toxic. Two donors of Group III, having been found among camp counsellors, were then immunized against the staphylocccus vaccine which had been prepared. A third donor was started with large injections, this donor to be used early and to be discarded if a negative phase was produced. On the eighth day, the first immune transfusion from donor No. 1, 180 c.c., was given and followed by no reaction. The lesion of the left clavicle had now progressed to subperiosteal abscess formation, which was drained under local anesthesia. On the day following the first transfusion, temperature rose to 105 and patient became delirious. On the tenth day, transfusion from immunized donor No. 2, 160 c.c., was followed by slight reaction. During this period donors were daily injected with progressively larger doses of the vaccine of the organism. From the beginning of the second to the end of the fourth week, nine transfusions were given, ranging up to 250 c.c. each. During this time, the toxicity of the patient was extreme, the temperature maintained itself between 103 and 104 for the first week, at the end of which the transfusions were started. Following each immune tranfusion, there was an afternoon drop in the temperature and temperature chart assumed a septic type of curve. This more level type of chart recurred in the third week for five days when transfusions were omitted—to be altered again to the saw tooth type when the immune transfusions were resumed.

Localization of infection at various points began on the third day with involvement of the left clavicle. On the seventh day, the right knee became puffy, followed by the left knee three days later, at which time the right tibia showed swelling and tenderness and was drained. On the twelfth day, the right clavicle and shoulder joint were incised. On the eighteenth day, extensive drainage of the right tibia was necessary. The patient complained of pain in the left elbow on the twelfth day, and at that time the left knee joint was aspirated and injected with 2% formalin in glycerine, a procedure which was repeated twice later. On the seventeenth day, superficial abscesses were found over the buttocks. At this stage the patient seemed in a hopelessly overwhelming infection and amputation of the right leg was considered, but Dr. W. R. MacAusland, who was called in for opinion at this point, considered the possible shock as a greater disadvantage than a limb now draining well, and as a result amputation was deferred. Four days later it was necessary to open the upper shaft of left femur and the great trochanter, this being at the end of the third week.

From the second to the fourth week, the patient was in an almost constant delirium, with pulse varying from 110 to 150, increasing gradually as the case continued. Prostration was extreme and patient was carried on constant stimulation over this period. During the sixth week, that following the ninth immune transfusion of 250 c.c., the temperature dropped gradually, reaching almost normal at the beginning of the seventh week. Immediately there occurred a violent gastric upset with rise in temperature to 104.5, which continued for four days during which the stomach was lavaged twice daily and patient carried along on saline hypodermoclyses. One week preceding the upset, the urine showed sugar, blood sugar was 114 mgs., and insulin and orange juice were given for four days. The remaining six weeks in the hospital were occupied by maintenance of nutrition and rest, care of position of limbs and improvement of general condition.

Through Professor K. N. Atkins of the Department of Bacteriology, Dartmouth Medical School, we learned of the work of Parker[1], of Columbia University, on a new staphylococcus antitoxin. A test amount was immediately forwarded, our supply later being augmented by the research department of Eli Lilly Company. This was started after skin tests on the night of the ninth day, and 10 c.c. were given intramuscularly daily for six days, then discontinued during transfusions because of the confusion as to the etiology of moderately severe reactions which were then obtained and because of the difficulty of recognizing a possible anaphylaxis.

This patient was discharged from the hospital on a stretcher on the ninety-seventh day. During the past year, there have been two operations for sequestra. Patient is now walking alone with the aid of a cane and during the summer has been able to swim. Obviously, from the nature of the outcome, there was no serious visceral involvement.

DISCUSSION

Staphylococcus Septicemia is a condition foreboding a most serious prognosis, carrying as it does the implication of little if any resistance on the part of the patient. The seriousness of the situation is obvious on the following basis: The result of any infection depends upon two variables, the resistance of the host, and the invasive power of the organism. Staphylococcus infections are of everyday occurrence and usually slight, indicating that in the individual of average resistance the invasive power of the staphylococcus is low. Staphylococcus septicemia indicates an extreme lowering of the body resistance of the individual to the point at which the ordinary staphylococcus may cause this serious infection. In the same way, if we grant that the albus is less pathogenic than the aureus, we can expect the staphylococcus albus

septicemia, by virtue of its establishment, to have a higher death rate than the aureus. By the same token, is a staphylococcus septicemia to carry a higher mortality rate than streptococcus septicemia. Therefore, the fundamental aspect of treatment must be the raising of the resistance of the patient to the organism. The chief factor in the protective effect of antisera obtained from immunized animals is dependent on the production by the organism of an ecto or soluble toxin such as is produced by the organisms of diphtheria and tetanus. The staphylococcus does not regularly produce an ecto or soluble toxin. The efficacy of staphylococcus antitoxins have, therefore, been questioned. Parker[1] has discovered that not all, but certain strains of staphylococcus do produce a soluble toxin. With this toxin, an antitoxin has been produced and was used in this case. Obviously, with the multiplicity of therapeutic factors present, the estimation of the individual effectiveness is difficult.

Any question as to the efficacy of the antitoxin does not preclude the raising of resistance by means of vaccine treatment—hardly possible in a patient with an overwhelming infection. Yet it is possible (if the patient lives long enough) to immunize some other person with a vaccine made from the patient, and then transfuse with the whole blood from the immunized donor. Such immune blood would contain opsonins and leukocytes which would not be present in an antitoxic serum.

The observations which were made clear to us and emphasized in this case were those apparent in most instances of multiple acute osteomyelitis: x-ray in early lesions is useless,—waiting for x-ray changes means passing the point at which drainage should be instituted. Radical medullary drainage was done at the site of each bone lesion and multiple surgical procedures for one bone avoided. Large dressings were applied after lightly packing the canal, and dressings left intact until further surgery was indicated elsewhere. In this way painful dressings were avoided. We have but little faith in the technique involved in aseptic dressings outside the operating room, and regard the possible contamination and, much more, the pain inflicted on the patient by irritating irrigations of infected wounds as definite contraindications to such procedures. Rather it seems more reasonable to provide adequate drainage and allow the packs to be floated out later in the exudate, which probably contains more effective bacteriacidal substances than those antiseptics with which we wash them away.

All this seemed reasonable in view of the extreme toxicity and severe weakness and prostration of the patient. The promotion of rest by all possible means can hardly be overemphasized. Immobilization in position of rest, sand bags, pillows and suspension of limbs for avoidance of muscle spasm and the prevention of deformity,—all must be used. Far from the least important factor in the handling of such a case is the nursing,—with such protracted toxicity, delirium, multiple lesions, and emaciation, the importance is obvious.

To repeat, staphylococcus septicemia implies little, if any, resistance on the part of the patient. Therefore, the most positive factor affecting the result is that which will raise the patient's resistance to the organism, and in the case of the staphylococcus, our best means at present is the employment of transfusions from donors immunized against the patient's autogenous vaccine. Our interest in this method in this case resulted from a case report by Doctor A. T. Downing of this Club, two years ago.

REFERENCE

1 Parker: J. of Exp. Med., 1924, 40, 761.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER LAUNCHES CAMPAIGN TO TEACH WOMEN

With the distribution this month of 668,600 of its pamphlet "What Every Woman Should Do About Cancer" the Society launched its campaign to reach 8,000,000 women in the United States with the helpful information now existing about cancer.

The Society had long wanted to produce such a pamphlet and the actual inspiration came last fall with a gift of $2,000 in memory of Benita Guggenheim Mayer. It then seemed fitting to use this memorial to disseminate a knowledge to women of the treatment and prevention of cancer.

Up to the present 668,600 copies have been taken for distribution and clubs have agreed to assist and are conferring as to the numbers they can use.

The most recent of these to offer its help in this work was the Young Women's Christian Association whose National Board has announced its intention of distributing the pamphlet through its educational department to its 1,131 centers with an aggregate membership of 600,000.

The Metropolitan Life Insurance Company heartily approved of the pamphlet upon receipt of the text and sent in its request to the Society for 275,000 copies.

This announcement to its San Francisco office brought back the immediate request for a minimum of 50,000 copies for distribution along the Pacific Coast and Rocky Mountain States.

The National Woman's Christian Temperance Union through its President, Mrs. Ella A. Boole, has accepted 300,000 copies of the pamphlet for distribution to its members.

The pamphlets are being sent into each state with the request that the state organization of the Women's Christian Temperance Union send them out at a designated time in order that the whole distribution may be made simultaneously.—*Excerpts from the January Bulletin.*

OXYGEN THERAPY IN THE TREATMENT OF PNEUMONIA AND POSTOPERATIVE PULMONARY COMPLICATIONS*

BY ROBERT S. PALMER, M.D.†

DURING the past two years we have been using the tent method of administering oxygen in the most urgent cases of lobar pneumonia, in some of the more severe postoperative pulmonary complications, and in a few other conditions presenting clinical evidence of anoxemia. It is possible with this apparatus to maintain the patient continuously in an atmosphere of 40 to 60 per cent. oxygen and at the same time to force fluids and carry out the usual nursing care.

LITERATURE

Since the war much has been written on the subject of oxygen therapy. A number of methods or modifications of older methods have been devised in order to obtain a higher, and therefore more effective, concentration of oxygen in the respired atmosphere, at a reasonable cost, without undue discomfort to the patient.

In 1921, at the Massachusetts General Hospital, Barach and Woodwell[1], [2], [3] and Means and Barach[4] developed a rebreathing apparatus by which a concentration of 40 to 60 per cent. oxygen could be maintained in the respired atmosphere and these investigations showed by blood gas analysis that anoxic (arterial) and stagnant (venous) anoxemia could be efficiently relieved by this method. The chief objective changes noted were relief of cyanosis and slowing of the pulse. The definite benefit of oxygen therapy in pneumonia and the relief of cyanosis resulting from an extreme type of shallow breathing in encephalitis lethargica were demonstrated.

Barach[5] has subsequently studied various other methods of oxygen administration. The nasal catheter method, the one most commonly used, he finds is ineffective at the rates of flow usually employed. However, with a flow of two liters per minute, a rate much more rapid than usually used, 29 or 30 per cent. oxygen in the respired air may be obtained. This is the lower limit of effective oxygen administration and will relieve milder degrees of arterial anoxemia. The tube and funnel method is practically useless. Other methods requiring face masks or mouth pieces and nose clips (Haldane Method, Rebreathing Apparatus) may seriously interfere with the comfort of the patients. Davies[6] and Hilton[7] also have reviewed the effectiveness of the various methods. Bourne and Smith[8] found the intravenous administration of oxygen impracticable.

Barach and Binger[9], in 1925, described a modification of the portable tent method for administering oxygen. We have used this apparatus and found it effective and its cost within reason. Moreover its use usually is not disquieting to the patient. It consists of a bag or tent which is put over the patient's head and shoulders and is approximately sealed off with the bed clothes. The atmosphere, moved by a motor driven fan, circulates continuously through the bag, out through the cylinder of cracked ice for cooling and into the bag again. Oxygen is added from high pressure tanks sufficient to maintain a concentration of 40 to 60 per cent. oxygen.

The known ill effects of anoxemia indicated by the symptoms of mountain sickness, headache, nausea, vomiting, irrational states, mental depression, and the fact that cases of carbon monoxide poisoning, though completely freed of carbon monoxide and the hemoglobin fully saturated with oxygen, may later die apparently from the damage done by the acute anoxemia, warrant the use of effective oxygen therapy in the presence of anoxemia. This is fully discussed by Barach[10], who reviews the literature on the subject. Animal experiments also have shown the adverse effect of anoxemia[11], [12].

A number of investigators[5], [6], [13], [14], [15] have found efficient oxygen therapy effective in relieving anoxemia and probably responsible for prolonging or even saving life in certain conditions. Barach[5], [13] and Boothby and Haines[14] have had especially favorable results with the tent or oxygen chamber in pneumonia, postoperative pulmonary complications, pulmonary edema and bronchiectasis with acute exacerbation of a pulmonary infection.

RESULTS OF OXYGEN THERAPY IN THE CASES AT THE MASSACHUSETTS GENERAL HOSPITAL

The use of nasal catheter administration of oxygen in general has not been well controlled and where used as a rule has not been pushed to the effective level. However, favorable results have been observed in a few cases where the anoxemia apparently was not great. In one case of bronchopneumonia complicating rheumatic heart disease the patient was comatose, cyanotic and altogether in a critical condition. A vigorous flow of oxygen through the nasal catheter kept the patient free of cyanosis and we believe was the single most important supportive measure that led to her eventual recovery. In other cases this method has relieved the cyanosis when a rapid flow of oxygen was employed. Barach[5] believes the nasal catheter is capable of relieving only the milder cases of arterial anoxemia. It must be borne in mind that if the flow is slow enough for the bubbles to be counted, the patient is receiving about ¼ liter of oxygen per minute, which is absolutely ineffective[6]. A high pressure

*From the Medical Service of the Massachusetts General Hospital.

†For record and address of author see "This Week's Issue," page 349.

oxygen tank with reducing valve and flow meter to maintain a constant rate of flow is essential. The flow from the small low pressure tanks must be readjusted constantly as the pressure falls.

The oxygen tent has been used practically, as a last resort measure, with fourteen patients in the medical wards, all of them very ill, some of them actually in extremis.

The pulmonary conditions primarily responsible for the cyanosis in these cases were as follows: Six patients had lobar pneumonia, four had bronchopneumonia. One patient was suffering from advanced pulmonary tuberculosis, one from lung abscess, one from carcinoma of a bronchus and one from asthma and emphysema. Cyanosis was definitely relieved in eight. Of the remaining six, two were not cyanotic when oxygen therapy was instituted. This leaves four in which the tent failed to clear the cyanosis. General improvement including dyspnoea, restlessness and apparent comfort was noted in six. There was clearly no change for the better in three. In the remaining five no change in the general condition was questionable. In only two cases did there appear a definite fall in pulse rate and in only one case was oxygen therapy followed by a fall in temperature. Of the fourteen patients, eleven died while under observation.

One case of rheumatic heart disease with broncho-pneumonia, a boy 14 years of age, was helped while a similar case, an adult male, was not helped. A man, 50, with arteriosclerotic heart disease, congestive failure, emphysema, asthma and circulatory collapse was distinctly benefited by the oxygen tent. One patient suffering from the terminal stage of carcinoma of the bronchus or lung with probable bronchopneumonia was very much helped by the oxygen tent. The cyanosis was cleared and while in the tent the spasmodic gasping respiration from which he had been suffering was much relieved.

In only one of the cases of lobar pneumonia was venesection employed. It is possible that a wider use of blood-letting, in the presence of pulmonary edema late in the disease, combined with intravenous glucose, as is the practice in some clinics[16], together with oxygen therapy might prove more effective.

We may conclude from this group of cases that oxygen therapy administered by the tent method will improve anoxemia, that it is a supportive treatment only and that if we expect it to be effective, it must be started at the first clinical sign of anoxemia.

In the surgical wards our results have been somewhat better. Ten patients have been treated. In at least one of these, oxygen therapy may have been a life-saving measure, while there was striking benefit in three. Two others were definitely helped. There were signs of some improvement in two, one showed no improvement at all and one was so apprehensive and uncoöperative that the procedure had to be omitted. Four of the patients died.

The case in which oxygen therapy was considered life-saving was that of a boy 16 years of age operated for a ruptured appendix. He showed the signs of a definite pneumonia with gradual extension of the process. He was cyanotic, delirious, and ran a high fever. The patient was kept in the oxygen tent five days. The cyanosis cleared, there was a rise in blood pressure, a fall in the temperature and a gradual disappearance of the delirium. One of the patients showing striking benefit appeared to have either repeated massive collapse or bronchopneumonia. There were sharp rises in temperature with prostration, sweating and cough, every other day. The oxygen tent cleared the cyanosis, which he never failed to show when out of the tent, and appeared to make the patient more comfortable. Finally this patient was given oxygen 95 per cent. and carbon dioxide 5 per cent., flowing at 5 to 6 liters per minute to maintain the oxygen per cent. in the tent at about 50. This was followed by permanent improvement. Unfortunately no accurate observations of the depth of respiration or analysis of the carbon dioxide content of the respired air were made. While the improvement may have been coincidental, nevertheless in cases of massive collapse, especially in those where there appears to be a succession of these episodes, as suggested in this case, it may be well to deepen respirations by the addition of small amounts of carbon dioxide in the respired atmosphere.

Of the other patients showing striking benefit, the diagnosis in one was probable pneumonia, although pulmonary collapse was a possibility. The third patient had successive pulmonary emboli after a posterior gastro-enterostomy, the emboli coming from phlebitis in the legs. Of the two patients definitely improved, one was diagnosed probable bronchopneumonia though pulmonary collapse was a possible diagnosis. In the other patient the diagnosis was not clear. Embolism was suspected. This patient eventually died. Another patient, diagnosed postoperative pulmonary collapse and bronchopneumonia following repair of a ventral hernia, also had hypertensive heart disease. She was a woman 60 years of age, who in spite of some temporary improvement, finally died. There was one patient with a chronic lung abscess who died following thoracoplasty. The oxygen tent was used only a short time. While in it, the cyanosis which he showed out of the tent was somewhat improved. Of the two showing no improvement, one was so unco-öperative that the procedure had to be omitted. The other was a man, 64, with bronchopneumonia postoperative from perineal excision of sinuses and suprapubic cystostomy. He was very slightly cyanotic before oxygen administration, which showed no definite signs of helping him aside from the fact that he appeared somewhat easier in the tent.

Of the observed effects of oxygen therapy, the clearing of cyanosis is most striking and can al-

most always be obtained. In our cases, undoubtedly because we resorted to the procedure so late in the disease, we have not seen marked effects on the pulse and temperature. Rise in blood pressure has been observed in some of the favorable cases. General clinical improvement, increased comfort, quieter though not necessarily less rapid respiration, in short, a sedative effect, was often noted even in those cases with a fatal outcome.

At the very least we find in this method a relief for cyanosis and the anoxemia which causes it. Knowing the profound disturbance resulting from uncomplicated anoxemia, we must conclude that effective oxygen therapy alleviates a part of the load under which the organism is laboring in pneumonia and in postoperative pulmonary complications.

I wish to express my appreciation of the kind criticisms and suggestions of Dr. James H. Means in the preparation of this paper. Some of the cases here reviewed were treated at the Massachusetts General Hospital by Dr. Lewis M. Hurxthal, whose notes I have used.

SUMMARY

1. Oxygen therapy by means of the nasal catheter, when properly used, is effective in relieving mild degrees of anoxemia in certain acute pulmonary conditions.

2. The oxygen tent gives a more easily controlled and a greater concentration of oxygen in the respired air and is essential in the treatment of the more severe degrees of arterial or anoxic anoxemia.

3. Oxygen administration by the tent method in pneumonia and in postoperative pulmonary complications has a rational basis in the relief of arterial anoxemia and in our experience often may be the single most important supportive measure in these conditions.

4. To obtain the maximum benefit from this procedure it should be instituted at the first indication of cyanosis.

5. At the Massachusetts General Hospital, oxygen therapy has been more effective in postoperative pulmonary complications than in lobar and broncho-pneumonia.

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THE INCIDENCE OF TUBERCULOUS INFECTION IN SCHOOL CHILDREN*

BY HENRY D. CHADWICK, M.D.,† AND DAVID ZACKS, M.D.†

THE Department of Public Health of Massachusetts began, in 1924, a ten-year program for the examination of the school children of the State. The purpose of this work was to find the children who had the primary or juvenile form of tuberculosis, and, by treatment and supervision, increase their resistance to such an extent that the secondary or pulmonary form would not develop in later years. This study is based on 42,071 children examined and given the Von Pirquet tuberculin test during a period of three years.

The relations of infection to age, to nationality and sex and to history of contact are considered in this paper. In 1927 the authors published a study‡ of 25,000 children, in which the relation of nutrition to infection was featured. It was found that the percentage of positive reactions to the tuberculin test is practically the same, whether a child is overweight, average weight or underweight. Therefore, the relation of infection to nutrition has not been included in this study.

In the same paper it was shown that boys and girls of similar age groups had about the same degree of infection, and therefore, that has not been tabulated again.

The number of children subjected to the tuberculin test in each age group is large enough to furnish accurate information as to the prevalence of tuberculous infection. This is important, as with a small group the inclusion of

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†For record and address of author see "This Week's Issue," page 349.

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more than the average number of contacts would show an abnormal percentage of reactors and would not provide an accurate measure of the incidence of infection in the population at large. Other factors, such as poverty and the associated crowded living conditions, lead to more intimate contact with bacilli carriers and so influence the percentage of reactors to a noticeable degree.

In one city of 60,000 population, 7,312 children were examined. This city is divided roughly into several natural geographical divisions, quite separated from each other. There is the granite quarry section, the shipbuilding section, the residential sections, the business section and a section projecting out into the Atlantic, making one point of a deep bay.

The percentage of reactors in the eighteen elementary school districts of this city shows a surprising variation. In four districts in the quarry section, the percentage of reactors runs from 48% to 60%. One quarry district school of similar grades, however, was a distinct exception, in that the percentage of reactors was but 16. No valid explanation can be made for this variation. The quarrymen are largely Scandinavians and Italians, and among them many deaths from tuberculosis have occurred.

In the isolated district almost surrounded by water, the percentage of reactors was also high, 56%. There is a cosmopolitan population, work is inconstant and the living conditions are much below the standard that prevails in other parts of the city. Several of the school districts in other sections of the city had as low as 11%, 14% and 16% reactors. The 7,312 children in the whole city showed 28% reactors.

The results in this community illustrate in a graphic way the fallacy of depending on the statistics of infection when they are obtained from the study of a few hundred children or a group in any one small section of a city. Living conditions, or an occupation predisposing to tuberculosis, have a marked influence on the spread of infection.

The three Junior High Schools had 22, 26 and 26% reactors, respectively. It is an interesting fact to find eight schools with children in Grades I to VI having a much higher percentage of reactors than the older children in Grades VIII and IX found in the Junior High Schools. Furthermore, the percentage of reactors in these Junior High Schools was lower than the average percentage of reactors in the city as a whole.

In the Teuton group we included the children of mothers born in Germany and Austria.

In the Latin group we included children of mothers born in France and Portugal.

The French Canadians are included in the Canadian group.

A study of the above tables shows no marked variation in the number of reactors in the children of the different nationalities when there was no history of contact. The tubercle bacillus apparently attacks the children of different nationalities without predilection for any one.

TABLE I

THE RELATION OF POSITIVE VON PIRQUET TEST FOR AGE

Age	5	6	7	8	9	10	11	12	13	14	15
No. examined	902	2525	3653	4313	4673	5230	5447	5451	4789	3168	1920
No. positive	188	511	814	1031	1143	1463	1559	1660	1649	1057	666
Per cent.	20.8	20.2	22.2	23.9	24.4	27.9	28.6	30.4	34.4	33.3	34.6

GRAPH NO. I.

POSITIVE VON PIRQUET BY AGE.

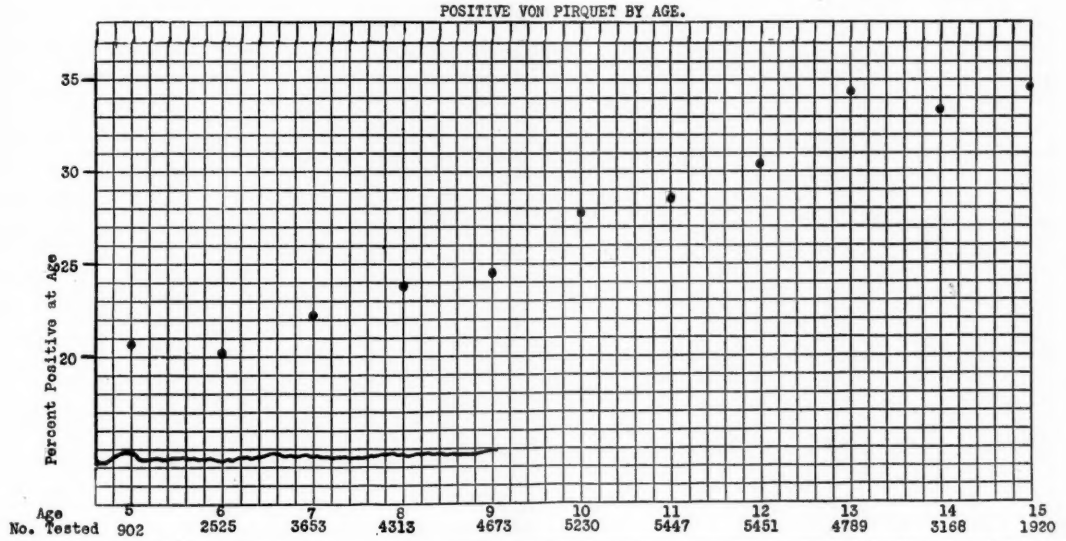


TABLE II

RELATION OF THE TUBERCULIN TEST TO NATIONALITY, CONTACT AND NON-CONTACT

Nationality	Number Contacts	Number Contact Reactors	Per Cent. Contact Reactors	Number Non-Contacts	Number Non-Contact Reactors	Per Cent. Non-Contact Reactors
English and Scotch	223	86	38.5	1623	371	22.8
Italians	501	240	47.9	2633	565	21.4
Russians and Polish	765	370	48.3	4431	1035	23.3
Americans	2475	1247	50.3	17405	4253	24.4
Irish	427	243	56.9	3397	835	24.5
Canadians	864	457	52.9	4299	1084	25.2
Teutons	75	55	73.3	533	128	24.0
Scandinavians	142	67	47.1	896	251	28.0
Latins	259	145	55.9	1123	309	27.5

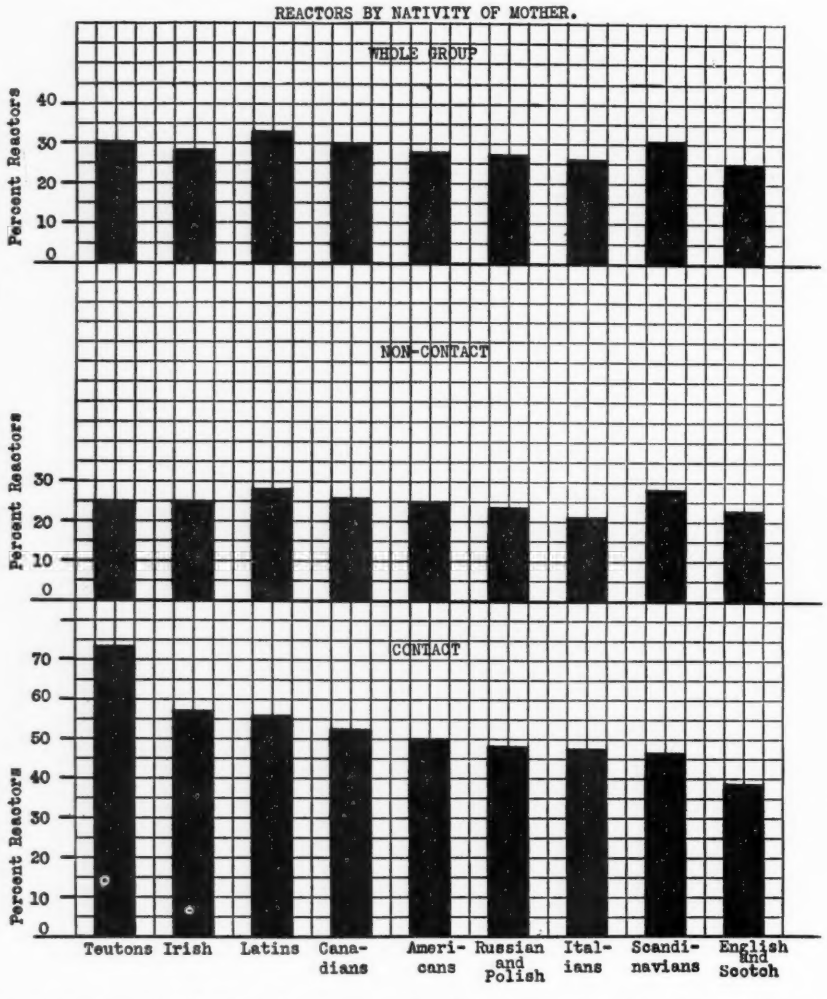
TABLE III

RELATION OF THE TUBERCULIN TEST TO NATIONALITY

Nationality	Number Tested	Per Cent. Reactors	Per Cent. Contacts in Number Tested
English and Scotch	1846	24.7	12.
Italians	3134	25.6	15.9
Russians and Polish	5196	27.0	14.7
Americans	19880	27.6	12.4
Irish	3824	28.1	11.1
Canadians	5163	29.8	16.7
Teutons	608	30.0	12.3
Scandinavians	1038	30.6	13.6
Latins	1382	32.8	19.

GRAPH NO. II.

REACTORS BY NATIVITY OF MOTHER.



It is not any peculiar susceptibility, but opportunity for infection that is important.

This study also shows that approximately twice the number of children react to the tuberculin test when there is a history of exposure to a case of pulmonary tuberculosis. The Teuton group showed three times as many reactors in the contacts. The Teuton non-contact group,

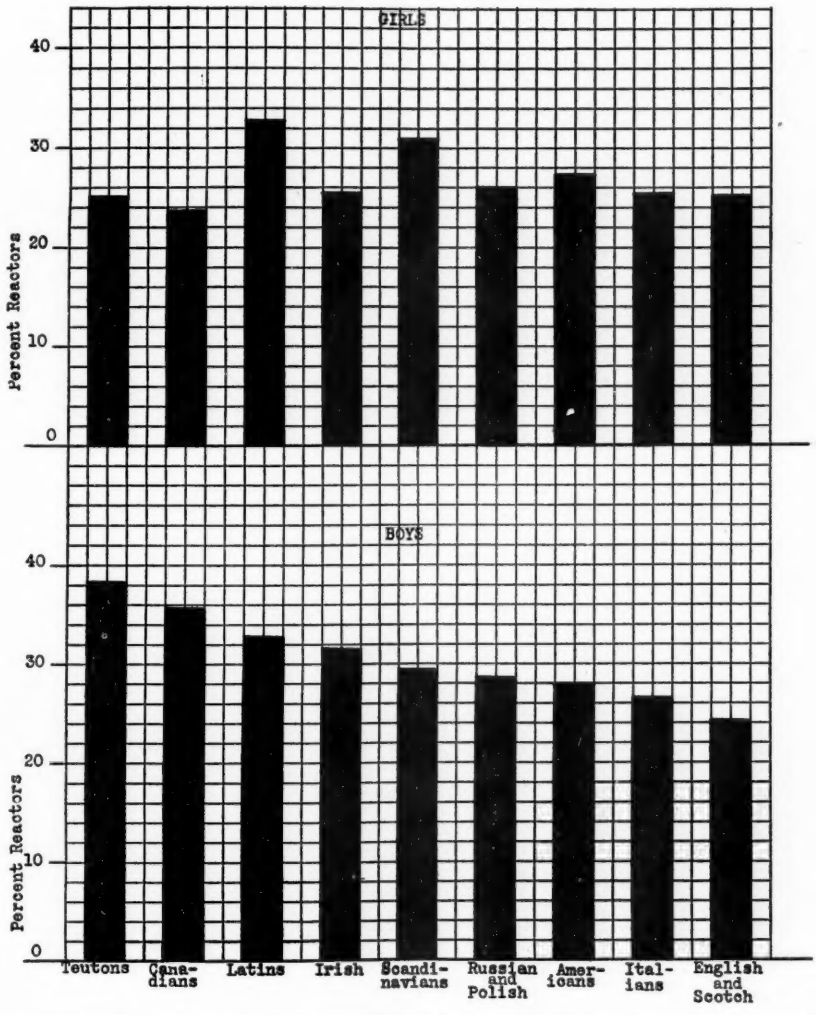
TABLE IV

POSITIVE VON PIRQUET TEST FOR SEX AND NATIONALITY

Nationality	*Boys* Number	*Boys* Per Cent. Reactors	*Girls* Number	*Girls* Per Cent. Reactors	*Total* Number	*Total* Per Cent. Reactors
English and Scotch	773	24.1	1073	25.1	1846	24.7
Italians	1054	26.5	2080	25.4	3134	25.6
Russians and Polish	1936	28.6	3260	26.0	5196	27.0
Americans	8405	27.9	11475	27.4	19880	27.6
Irish	1525	31.8	2299	25.7	3824	28.1
Canadians	1757	35.8	3406	23.8	5163	29.8
Teutons	230	38.2	378	25.1	608	30.0
Scandinavians	439	29.6	599	31.1	1038	30.6
Latins	546	32.9	836	32.7	1382	32.8

GRAPH NO. III.

POSITIVE VON PIRQUET BY SEX AND NATIONALITY.



numbering 533, showed only the average number of reactors.

The percentage of acknowledged contacts in each group runs from 11 to 19%. The Latin group has the highest percentage of contacts and has the highest percentage of infections. Whenever the percentage of contacts in a single group exceeds the average for all groups, then the percentage of reactors will be correspondingly increased, irrespective of nationality.

The notable difference in the number of reactors in the two sexes for three groups makes an interesting puzzle and one that cannot be satisfactorily explained. One can only wonder why the Irish, Canadian and German boys should show a much higher incidence of infection than the girls of the same nationalities. The groups examined are large, except in the

Teutons, and that is over 600. This should eliminate the factor of chance inclusion of more than the average number of contacts.

The reactors among the boys exceed the girl reactors by more than 24% in the Irish group, 50% in the Canadian group and 52% in the Teutons. The percentage of reactors in the two sexes in other national groups studied is approximately the same.

In any study of the prevalence of tuberculosis, it is of interest and of value to try to determine whether the degree of infection keeps pace with the declining death rate. For this reason, we have compared the results of the tuberculin tests made by Dr. P. C. Bartlett for the Framingham Demonstration in 1917 with those found by the State Clinic in the same town in 1926.

TABLE V

FRAMINGHAM DEMONSTRATION AND STATE CLINIC COMPARED

PER CENT. REACTORS FOR AGE

Framingham Demonstration

Age	1-2	2-3	3-4	4-5	5-6	6-7	Total Examined
No. Examined	67	65	78	79	77	94	460
No. Reactors	10	16	24	21	40	43	
Per Cent. Reactors	15	25	31	27	52	54	

State Clinic

Age	3	4	5	6	7	8	9	10	11	12	13	14	15	
No. Examined	3	4	12	21	41	45	61	75	66	63	64	40	25	520
No. Reactors	0	0	0	3	13	9	13	19	14	18	20	13	7	
Per Cent. Reactors	0	0	0	14	31	20	21	25	21	28	31	32	28	

Demonstration	Average Per Cent.	33.3	Average Age	4.7	years
State Clinic	" " "	24.8	" "	10.4	"

The striking thing about this comparison is the marked reduction in tuberculous infection in Framingham after nine years of intensive antituberculosis and health work. Although the numbers studied are small, the downward trend of infection checks up with the substantial reduction in death rate from tuberculosis in Framingham.

To properly evaluate the reduction in reactors from 33.3 to 24.8%, one must take into consideration the difference of about six years in average age in the two groups of children. All of the 1917 group were from one to seven years, while of the 1926 group only eighty-one were from three to seven years, and all the other 439 were from eight to fifteen years of age.

Of the eighty-one children, three to seven years, in 1926, only 19.7% reacted to the tuberculin test. Of the age group three to seven, in 1917, 393 children showed 43.9% reactors. For the same age group, the numbers are small, but the reduction in infection is so marked that it has significance. It contrasts a group of children living in the same town and under similar conditions.

The tuberculin was supplied by the Saranac Lake Laboratory and the Von Pirquet method was used for both series. It would seem, therefore, that a substantial decrease in tuberculous infection had taken place in Framingham during the nine years following the initiation of the Community Health and the Tuberculosis Demonstration by the National Tuberculosis Association in 1917.

SUMMARY

The percentage of reactors in the 42,000 children studied in this series shows a gradual trend upward from 21% infections at age five, 28% at age ten to 35% at age fifteen. The average percentage for the whole group is 28%.

Different sections in the same city may show a wide variation in the percentage of reactors. It was found in one city of 60,000 that the number of children reacting to the tuberculin test in different school districts varied from 11% to 60%.

The number of reactors increase with the opportunities the child has for contact with bacilli carriers. Chronic forms of pulmonary tuberculosis, such as are found in granite quarry workers, expose and infect more children than the more acute cases, who live a much shorter time after the disease becomes infectious. Crowded living conditions afford more opportunities for contact and congested areas show a higher percentage of infection. Twice as many reactors are found among children with a history of direct contact with a case of pulmonary tuberculosis.

Another factor to be taken into account is bovine infection. In a few rural towns with a scattered population and less than the average number of pulmonary tuberculosis deaths, we found as high as 38% reactors. The majority of the small towns, however, show a little less than the average percentage for the State as a whole.

Susceptibility to infection appears to be equal in different nationalities. The tubercle bacillus infects the children of different nationalities to an equal degree when similar conditions for contact with carriers are present.

The boys of the Irish, Canadian and Teuton groups in this series show a much higher incidence of infection than the girls, for which no explanation is offered.

The tuberculin survey made in 1917 by the Framingham Demonstration and the one made in 1926 by the State Clinic for the same age group, 6 and 7 years, shows a reduction of 23%. The children in the 1926 group averaged 5.7 years older than those examined in 1917, but the percentage of reactors was 23% less. While the numbers considered in this comparison are small, the marked reduction in infection checks up with the reduced death rate in Massachusetts for all forms of tuberculosis, which declined from 144 per 100,000 population in 1917 to 73 in 1927.

Three important factors have operated to bring about a reduction in the number of infected children:

1. The steady decline in the death rate results in fewer persons with tuberculosis at large in the community to spread infection.

2. The State has a little more than one bed for each tuberculosis death in which to segregate cases of tuberculosis and so further reduce the foci of infection in the homes of these patients.

3. Pasteurized milk is now available for about 60% of the population of the State and by so much is the possibility of bovine infection curtailed.

The efforts made in the past to eradicate tuberculosis from the herds in this State have been sporadic and therefore ineffective. The past year, however, a systematic plan for area testing has been put into effect, which promises better results. This plan deserves the hearty support of the public.

The sources of tubercle bacilli, both human and bovine, being thus decreased, must result in fewer persons being exposed to infection. Therefore, we should expect to find a reduction in the number of reactors. Such indeed seems to be demonstrated by our survey.

The tuberculin survey herein reported will afford a basis by which to measure the incidence of infection when comparable studies are made in future years.

Tuberculous infection is no longer universal in Massachusetts. The increase in infection from five years to fifteen years averages one point per year. Granting that the same rate continued, the children now fifteen years of age would show but 50% infection when thirty years old. A tuberculin test of a large group of adults might show that to be the maximum percentage of infection even now.

With the marked decrease in the number of infected persons, tuberculin tests become of diagnostic value in young adults, as well as in young children. If intracutaneous tests are made with increasing doses of tuberculin, beginning with .01 mg., then with 1 mg., and finally with 10 mg., without reaction, tuberculosis can be excluded in many persons suspected of having that disease. In such cases, a negative test is of great value.

PLANS FOR ADDITIONS TO THE SPRINGFIELD (MASS.) HOSPITAL

As a result of conferences in recent years plans are under way for a campaign to raise $2,000,000—to provide additions to the Springfield Hospital.

This was definitely brought to the attention of the public by Mr. Henry A. Field, President of the Hospital Trustees in the annual report submitted a short time ago.

The following named officers were elected at the annual meeting:

President, Henry A. Field; Vice-President, Dr. Ralph H. Suley; Clerk, Windsor B. Day; Treasurer, Frank S. Burt.

The trustees, all reelected, were chosen to serve until 1932; Dr. Everett A. Bates, Nathan D. Bill, Henry L. Bowles, Phelps Brown, Henry A. Field, Charles C. McElwain, James L. Pease, George Dwight Pratt, Mrs. George S. Sabin, Dr. Frederick B. Sweet.

Dr. Theodore S. Bacon was elected president of the medical board to succeed Dr. Dudley Carleton, who declined to serve another year as president. Dr. John M. Birnie was chosen vice-president, replacing Dr. Bacon in that position, and Dr. Allen G. Rice was reelected secretary.

The present staff was reappointed for 1929. In addition the following additional appointments were also made: Dr. James Holmes was appointed voluntary assistant to the orthopedic service, Dr. George L. Parker, voluntary assistant to the pediatric service; Dr. H. K. Fison, dental surgeon; Dr. A. R. Rood, bronchoscopist; Dr. Harry L. Roberts, voluntary assistant to the surgical service.

A WARNING TO THE TRUSTING DOCTOR

$950 . . $400 . . $3600 Or What Have You?

These are some of the actual cash amounts which have been recently reported lost in the "Tipster Sheet" racket.

Fake financial newspapers with their follow-ups of lengthy telegrams and high pressure telephone salesmen continue to cover the country, endeavoring to induce the public to purchase for dollars, stocks which the promoters have secured for cents. This is the "Tipster Sheet" racket.

No need for the people of Greater Boston to become victims of this scheme. The Better Business Bureau will, on request and without charge, supply you with fact information.

Before You Invest—Investigate!—*Bulletin Boston Better Business Bureau.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15071

HOARSENESS AND DYSPNEA

MEDICAL DEPARTMENT

First admission. An American bookkeeper forty-nine years old entered April 17 complaining of hoarseness.

Four and a half months before admission his voice began to be hoarse, growing progressively worse until in a month he was unable to speak above a whisper. For several months he had had very slight dyspnea on exertion and palpitation on lying on his left side. He was occasionally conscious of arterial pulsation in his arms and legs. A week before admission he began to have difficulty in getting his breath, chiefly on inspiration. This would come on at night. He was unable to sleep because of inspiratory rattling in the right nostril and apparently down the trachea and right bronchus, never on the left. Two or three times a night this would finally obstruct his inspiration and he would choke and raise a little grayish white sputum with relief. Just before admission he had dull pain several times a day for a few minutes from the mental prominence to the angle of the left mandible. His weight had fallen from 126 pounds five months before admission, his best weight, to about 100.

His mother was nervous.

Thirty years before admission he had a chancre, treated with mercury by mouth. For five years after this he had dysuria and stricture. He had hemorrhoids which bled for a few days two or three times a week. For nine years he had urinated two to four times at night. Five years before admission he had pneumonia. Soon afterward he noticed a gland the shape and nearly the size of an egg in the right anterior upper triangle of the neck extending to the sternoclavicular junction on the right, which was definitely enlarged and had remained so. The gland disappeared and the joint became smaller a year and a half before admission.

Clinical examination showed a poorly developed, emaciated man with hoarse voice and obstructed stenotic breathing. Over the right sternoclavicular junction was a soft tumor with a suggestion of fluctuation. Over the head of the manubrium was a reddish papular rash arranged in circles. Over the isthmus of the thyroid was a very hard mass one centimeter in diameter moving with respiration. The isthmus was palpable, hard. At the right apex in front and down to the angle of the scapula posteriorly was dullness with bronchial breathing and increased voice; in the back a few râles after cough. The apex impulse of the heart was not seen or felt. Left border of dullness 8.5 centimeters to the left of midsternum, 2 centimeters outside the midclavicular line. Right border 3.5 centimeters, supracardiac dullness 7 centimeters. No murmurs. Blood pressure, right 250/140, left 240/140. Pupils reacted sluggishly to light and distance. The rest of the examination, including the fundi, was negative.

X-ray examination showed the diaphragm high on the right side. The costophrenic sinus was shallow. The right lung field was much smaller than the left. The heart and mediastinal contents were slightly displaced toward the right. There was dullness along the right sternal margin which extended upward and excluded the apex of the lung. The border of the dull area was sharply defined. The shadow itself was of even density throughout, more dense than the heart shadow. The trachea was displaced to the right. In the upper portion of the right lung field extending from the apex to the third rib there were scattered irregular dense shadows some of which were linear.

A throat consultant found both cords fixed in the cadaveric position; very narrow glottic space; tracheotomy indicated.

April 18 the patient was transferred to the Eye and Ear Infirmary.

At the Infirmary throat examination showed the left vocal cord in the cadaveric position. The right cord over-adducted, but had reduction of abduction. A Wassermann was strongly positive. X-ray showed a mediastinal mass displacing the trachea. The lungs were clear. Tracheotomy was not done. April 23 he was transferred back to the Massachusetts General Hospital.

Second admission. April 23.

Clinical examination was as before. Blood pressure 240/140 to 220/120.

Urinary sediment loaded with pus at one of three examinations, pus at all, urine otherwise not remarkable. Blood at admission normal. Two Wassermanns strongly positive.

X-ray examination confirmed the previous findings. The size and shape of the heart shadow was within normal limits. Examination with barium showed a large hour glass contraction of the stomach. No evidence of crater. The stomach emptied normally. Another chest examination confirmed the previous findings and also showed a small dense shadow near the bifurcation of the trachea, possibly in the right main bronchus. This shadow was not visible in the previous plates.

April 28 biopsy was done. A thickened cord was found just to the left of the midline of the

neck running upward from the manubrium sterni and apparently attached above to the thyroid cartilage. It had the appearance of muscle which had been infiltrated or changed in some pathologic process. (The assistant surgeon described it as a cord-like mass which did not appear to involve the muscle itself.) A large piece was removed for examination.

May 2 the patient developed symptoms of what proved to be scarlet fever. May 5 he was transferred to the South Department of the Boston City Hospital.

Third admission.

June 2 he returned much improved. His voice was much better. Antiluetic treatment begun here had been carried on intermittently at the South Department.

Examination was as before.

X-ray examination showed that the process in the right upper chest had increased somewhat since the last observation. The changes at the second interspace were more dense. The upper mediastinal shadow and the trachea were dis placed to the right. The left lung field was increased in radiance and had the general appearance of compensatory emphysema. There was apparent increase in the width of the aorta which might have been due to displacement. There was cavitation present.

June 8 the patient was discharged to the South Medical Department to continue antiluetic treatment.

History of interval. During the next seven weeks he grew stronger rapidly and gained weight. His voice improved steadily. He had occasional trouble from a tickling sensation in the midline of the throat at about the level of the thyroid isthmus.

Fourth admission, July 14.

The chest signs remained as before. The skin lesions in the front of the neck had disappeared. Blood pressure 203/143 to 180/125. X-ray examination showed a picture identical with the one in June. July 17 he was discharged.

History of interval. For the next six months he was treated regularly in the South Medical Out-Patient Department and felt very well. His Wassermann was still positive in December. January 22, after a slight sore throat which cleared up overnight, he began to have aching in his legs and stiffness in his knees, growing rapidly worse. The following day he could not bend his knees and could scarcely walk because of the aching. He developed severe dull constant ache in a narrow band across the lower abdomen and lumbar region lasting a few hours. After two days in bed he was able to go to the South Medical Department for treatment and continued to improve after it. January 29 most of the aching was gone. Then after another slight sore throat the aching and stiffness of the legs and the aching in the lower abdomen and back recurred, more severe than ever before, and for four days he was in bed. He had also very severe intermittent aching pain in the median upper lumbar region almost every day. During the five weeks before readmission his hoarseness became more marked. He had taken no potassium iodide for six months.

Fifth admission, February 4, seven months after his discharge.

On clinical examination he was thin. Throat injected. Dullness persisted at the right apex front and back, with increased tactile fremitus and prolonged expiration; in the back, spoken and whispered voice increased. Blood pressure 160/100 to 88/70. Inguinal glands enlarged. Marked tenderness over the backs of the thighs and calves.

Urine, normal amount, specific gravity 1.006 to 1.020 at 12 examinations, the slightest possible trace of albumin at 6, rare to occasional leukocytes at 9, 1 to 10 red cells per field at 3. No Bence-Jones protein at 3 examinations. Renal function 50 per cent. Blood: hemoglobin 65 to 45 per cent, reds 4,112,000 to 2,250,000. Smear at entrance normal. February 18 considerable achromia without much variation in size or shape, many basophilic red cells and one normoblast seen. Leukocytes 11,700 to 20,100, polymorphonuclears 93 per cent. Non-protein nitrogen 24 to 33 milligrams. Icteric index 6 to 10. Wassermann and Hinton negative. Sputum: blood at 2 of 7 examinations, no tubercle bacilli. Stools, guaiac strongly positive at 3 of 15 examinations. No tubercle bacilli found. Lumbar puncture in the fourth lumbar space 15 cubic centimeters of clear colorless fluid. Cells, one lymphocyte. Initial pressure 230. Dynamics otherwise normal. Alcohol very slightly positive. Ammonium sulphate and Wassermann negative. Total protein 19. Colloidal gold 0000000000.

Temperature 95.9° to 102.2°. Pulse 61 to 130. Respirations normal.

X-ray examination of the chest showed no marked change since the previous observation. The right diaphragm was somewhat high. Another examination five weeks later showed no change in the picture. The kidney outlines were indistinct on both sides. As far as could be determined they were not abnormal in size, shape or position. The long bones were negative. A barium meal showed no filling defects. The esophagus was definitely displaced to the right in the region of the manubrium. No definite defects in the esophagus were seen although satisfactory examination was impossible.

The patient had pains in the legs and chills, and looked critically ill. The abdomen became distended and tender, with shifting dullness. A neurologist thought the nerve signs and symptoms due to some extraspinal process, possibly in the pelvis. A throat consultant thought the laryngeal findings were due to pressure on the left recurrent laryngeal nerve. The visiting physician found evidence of cavity formation more marked. There was a striking change an-

teriorly. The mediastinum was now resonant, and also the right apex. The breathing was amphoric. Spasm and a mass were found in the right upper quadrant. Another nerve consultant thought the condition of the feet a peripheral neuritis.

February 20 transfusion was done with improvement in the general condition. March 28 the patient was discharged.

History of interval. For the next two months he stayed at home, in bed most of the time. May 8 he went to the Emergency Ward for observation. Wassermann and Hinton tests were strongly positive. X-ray examination showed no appreciable change since the last observation. He looked well and felt comfortable until May 22 except for shooting needle-like pains down both legs, worse on the left. He was unable to move his legs and they felt dead. His hoarseness increased. May 22 while an enema with tarry returns was being given he was seized with a choking sensation in the chest. His respiration increased and he felt weak and cold. He began to cough and raise small amounts of bright blood-streaked sputum. This continued until his readmission. At midnight May 23 he had another attack of suffocation. A physician gave morphia.

Sixth admission, May 24, two months after the last discharge.

On clinical examination he was cyanotic, dyspneic, perspiring, with frequent dry cough and scanty thick white and blood streaked sputum. Temporal vessels engorged. Neck vessels pulsating. The most striking change in the chest examination was that the entire left chest, front and back, was filled with coarse crepitant râles. Expiration was prolonged. Percussion note less resonant anteriorly on the left than on the right; posteriorly equal on both sides. Dullness in the right axilla. Increased tactile fremitus on the right, front and back. Bronchovesicular breathing over the right front, becoming bronchial in the axilla. One expiratory wheeze anteriorly on the right near the sternum. Posteriorly harsh bronchial breathing, loudest at the level of the scapula, diminished towards the base. Voice sounds loud and high pitched, becoming less marked at the base. Diaphragmatic excursion equal. Small cervical, axillary and inguinal glands. A few small glands palpable beneath the right clavicle, where there was also visible pulsation with systole. Mediastinal dullness increased, 4 centimeters in the first space, 8.5 in the fourth. Heart not remarkable except for supracardiac dullness 9 centimeters. Abdomen slightly tense. Feet and ankles appeared swollen; no pitting. Marked toe and ankle drop. Reflexes not obtained. Pupils small (morphia) and inactive, left greater than right.

Urine, 120 ounces May 26, afterwards amount normal, specific gravity 1.019 to 1.020, a large trace to a very slight trace of albumin at both of two examinations, one or two leukocytes per field at one. Renal function 35 per cent. Blood: hemoglobin 60 per cent, reds 3,750,000 to 3,300,000, slight variation in size and shape, no achromia, some basophilia, platelets normal, 10,800 to 26,000 leukocytes, 95 per cent polymorphonuclears. Hinton and Wassermann strongly positive. Non-protein nitrogen 41 to 28 milligrams. Sputum, no blood or tubercle bacilli on three examinations. Sputum culture: the predominating organisms were micrococcus catarrhalis, streptococcus viridans, influenza bacillus.

Temperature 102° to 96° by rectum, pulse 90 to 135, respirations 20 to 36.

X-ray examination May 24 showed that the process in the chest had advanced very markedly since the previous observation. There was now mottled dullness involving the entire right lung field and even more pronounced extensive dullness involving the left chest also. June 4 the process was much the same. The density had increased somewhat on the left.

The night of May 27 the temperature dropped from 101.7° to 99.2° and the patient felt somewhat better. He had several attacks of dyspnea and coughing requiring morphia. June 4 he suddenly died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

1. That inspiratory rattling in the right bronchus and not in the left is a very definite observation. That much plus this hoarseness makes us think of aneurysm.

2. Up to the beginning of the first physical examination we have hoarseness, curious breathing with a sense of something wrong on the right side, dyspnea, choking at night and a gland in the neck which apparently has disappeared. I think it will be interesting to see if it really did disappear.

3. I suppose "stenotic breathing" means a whistling sound that they can hear.

4. I do not believe that the difference in right and left blood pressure is significant. They are both very high.

5. The thing that impresses us in the lung examination at the first admission is that the right lung field is smaller than the left. The bronchus is pressed on so that the lung is not expanded like the other lung. The dullness is natural if there is not full expansion of the right lung. The left goes over to take its place.

6. The displacement of the trachea shown by X-ray certainly is suggestive of a tumor with pressure on the bronchus and perhaps on the lung itself. Whether those dense, sometimes linear shadows are due to changes in the lung, chronic interstitial pneumonia or other changes of that sort, we shall see later.

7. The story at the end of the first admission

is that both vocal cords seemed to be affected, not one. In aneurysm so far as I know it is always one,—the left. This seems to be evidence for tumor, not aneurysm.

8. We are not told anything about the size of the mass in the physical examination. Presumably it varies from time to time.

9. Hour-glass contraction of the stomach is unexpected. There is nothing to suggest anything wrong with the stomach so far as I see. Hour-glass stomach ordinarily means an old ulcer which has contracted. There is no evidence of the crater of an ulcer, however, so that it looks as if it had healed.

10. The small dense shadow makes one wonder about a foreign body in the lung. But I think he had enough to deal with without that. We will not suppose that yet.

11. "Compensatory emphysema" is what one would expect.

12. Increase in the width of the aorta might be due to syphilis. The Wassermann was positive. They are still wondering about the possibility of aneurysm.

13. I suppose the cavitation was in the lung. So far as we know he has not had X-ray treatment.

14. One wonders whether syphilis without aneurysm would explain the whole case. One thinks of the other common syphilitic lesions in this part of the body. Syphilitic stenosis of a bronchus would lead to the diminution of the right lung field and to compensatory emphysema of the other. It would not however account for his hoarseness. We should have to suppose something else to account for that. There might be syphilis in the larynx itself, or there might be aneurysm. The changes in the vocal cords also are difficult to explain on the hypothesis of syphilis alone. I do not know that they could not be explained. Perhaps they could.

15. It is strange that he felt very well.

16. "Dull constant ache in a narrow band." They are thinking of some syphilitic cord lesion, I guess, but I do not believe we have enough to do more than guess. One wonders about spinal arthritis. He had a sore throat followed by arthritis. That is common. Perhaps his arthritis is spinal arthritis. That gives these queer pains around the trunk.

NOTES ON THE LAST TWO PHYSICAL EXAMINATIONS

1. The blood pressure shows extraordinary variation unless there is some collapse or hemorrhage.

2. The absence of Bence-Jones protein at three examinations is evidence against certain bone tumors.

3. The leukocytosis means something at this fifth admission, I do not know yet what.

4. The strongly positive guaiac in the stools is significant, since we remember that he had hemorrhoids.

5. If he has tuberculosis in his lungs he probably swallowed sputa and the bacilli might be but were not found in his feces. Cavitation of course is common in tuberculosis.

6. What about that hour-glass stomach? I wonder if that got well too.

7. There is quite a difference between the clinical picture at this fifth admission and the one before.

8. Pressure on the left recurrent laryngeal nerve sounds ordinarily like aneurysm.

9. Transfusion was done presumably for that anemia we read about above.

10. The description of the condition that brought him in the sixth time is like the ordinary picture of hemorrhage.

11. Visible pulsation beneath the clavicle with systole does not mean aneurysm. We often get that in health. But it is perfectly consistent with aneurysm.

12. "Reflexes not obtained" sounds like peripheral neuritis.

13. It is strange that he should have a positive Wassermann again. I think there is some inflammatory process going on,—in the lungs, so far as I know.

14. We must remember how many times they tried to find tuberculosis in the sputa. They have had many chances to find it, but it is not there.

15. The results of the sputum culture have no importance.

DIFFERENTIAL DIAGNOSIS

Let us try to start from the point we know most about, that is, the X-ray. The thing that strikes me is this shadow of a mediastinal mass. The same thing is in all the plates. We speculate naturally about that biopsy. It either showed neoplasm or it did not. If it did, they would have got busy with something, probably X-ray therapy, and we do not hear that during any time in the case. In fact they did not do anything that I can gather from the records to make it appear likely that they thought it was not neoplasm.

Dr. Tracy B. Mallory: The diagnosis on that biopsy was chronic inflammation.

Dr. Cabot: Thank you. For that reason as well as for the clinical course, his feeling well at times and being out a good deal, it seems to me (1) *neoplasm* is not at all probable. (2) *Bronchial syphilis* we certainly have good reason to suspect. He apparently had a primary lesion. He had a positive Wassermann a number of times. He has symptoms easily explained by a common syphilitic lesion, stenosis of the bronchus and other symptoms which often go with syphilis. I do not see that he had any clear symptoms of (3) *aneurysm.* The thing most definitely suggesting aneurysm is the paralysis of his left recurrent laryngeal nerve; but I do not see that we have anything else to back that up. The X-ray does not support it in any way that I can see. Let us leave this question of

syphilis for a moment. So far I believe that he has had syphilis and that it is a part of the diagnosis.

What about (4) *tuberculosis?* They talked about cavitation, and no doubt he had it, though that last plate does not show it.

DR. MALLORY: Dr. Holmes on reviewing his plates did not see any evidence of cavitation.

DR. CABOT: The most striking thing against tuberculosis is that they had plenty of good chances to find it in his sputa and they did not. There were many good examinations of the sputa and they were negative. Also he had periods of being more nearly normal than they have accounted for, and he did not have steady temperature, which we expect.

(5) What about the "peripheral neuritis"? And about the toe and ankle drops and the absent reflexes? Can we put those down to any cord lesion? I do not see how we can. Is there such a thing as syphilitic neuritis? Not that I know. He was treated a good deal for syphilis. Conceivably it is due to his treatment. It does not seem very probable, because he was treated by the very best experts. But if it is not arsenical neuritis (which I do not believe), then I do not know what type it could be. We have no other clear reason why neuritis should appear while he is under treatment.

(6) I wish we knew more about that *hour-glass stomach.* There are often mistakes about that diagnosis. Peristaltic dents are sometimes mistaken for hour-glass stomach. I am surprised that they did not say anything about it on subsequent examination if it was so clear the first time. They say so little about it that I almost doubt if it was there at all.

Aside from that we have nothing wrong below the waist. Above the waist we have a heart that is maintaining a high blood pressure over a long period, therefore a (7) *hypertensive type of heart.* It ought to be enlarged, though it does not look so in this plate. I still think it ought to be enlarged. I do not think we have any evidence of a valve lesion.

Suppose now we follow through the hypothesis of *syphilis of the bronchus.* Can we account for everything in this case by that? I do not see why not. We certainly can account for all his earlier symptoms. We can account for his lung symptoms, because stenosis of the bronchus will certainly cause a *chronic pneumonitis with or without abscess and bronchiectasis.* A good many cases show gangrene, which apparently was not present here. If pneumonitis started on one side I do not see why it might not go over to the other side. He certainly had *diffuse bronchopneumonia* at the end, I think *non-tuberculous.* Having had one case of actinomycosis recently I think we are safe in saying he did not have it. I do not believe that any of us will ever see another purely pulmonary case.

Can we account for his paralysis of the left recurrent laryngeal nerve by the stenosis of the right primary bronchus? I feel as if we might. The whole bronchial tree is pushed over very much, and one can see how the left recurrent laryngeal nerve might be injured by pressure in that process. Malignant disease, aside from the negative examination Dr. Mallory spoke of, I think we have said enough about. His general condition is strongly against it. In regard to aneurysm, the only definite symptom that he has is the paralysis of the left recurrent laryngeal. Can any of this heart shadow in the X-ray be aneurysm? I do not see why not, especially in these two later X-ray pictures. There is not much said about these shadows, but I do not see why the shadow on the left could not perfectly well be aneurysm. If he has aneurysm we still have to suppose stenosis of the bronchus. Could not the bronchial stenosis be caused by pressure from without? I do not know why it could not.

I have gone as far as I can. I believe it is syphilitic disease with aneurysm. Whether the bronchus is also attacked by a stenosing process or whether it is merely compressed by the aneurysm I do not know. In any case I think this stenosing of the bronchus, whether within or without, caused a chronic pneumonia which finally got over to the other lung and as bronchopneumonia was the cause of his death.

MISS PAINTER: There are some rather interesting consultations at the last admission. A syphilologist reported: "With the amount of treatment the patient has had during the past year I think lues the least probable of the possibilities and think malignancy the most probable." He advised however resuming antisyphilitic treatment. A lung consultant reported: "Tuberculosis or malignant disease, with the chances in favor of the former." A heart consultant reported: "Aortic aneurysmal dilatation, probably general but perhaps with especial increase of the ascending part of the arch (region of the innominate artery) along with a complicating pulmonary infection—possibly bronchopneumonia and old tuberculosis would best explain the history and findings here, I believe. Recently cardiac asthma,—suggesting coronary involvement." He explained afterward that he would not have said this if he had seen the X-ray films showing the lateral view.

A STUDENT: What about the leukocytosis?

DR. CABOT: I explained that by the bronchopneumonia, the result of pressure on the bronchus.

A STUDENT: Could he have had that for such a long time?

DR. CABOT: I think so. I have known it to be proved at autopsy.

A STUDENT: What about the ascites?

DR. CABOT: They do not mention that at the end. They do mention edema of his legs, which really came from the same cause. I do not understand this. Neuritis itself produces edema.

I do not know why he had it. His heart seemed sufficient. I do not think I can explain that.

A STUDENT: Can we associate hemorrhage with tarry stools?

DR. CABOT: I am glad you brought that up.

A STUDENT: Could that be a rupture of the small part of the aneurysm?

DR. CABOT: No, I think not. I think we should have heard more about the esophagus if that had been so. I do not know what to say about the tarry stool or the hemorrhage. Hemorrhage might have been in the lung, but very little came out.

A STUDENT: What brought the blood pressure down?

DR. CABOT: I suppose hemorrhage. I think I have neglected this aspect of the case, and ought to consider it further. He certainly had hemorrhage. Start with the lesion which I think he had, aneurysm; can we connect the hemorrhage with that? I do not know that we can.

A STUDENT: There was bloody sputum after that.

DR. CABOT: Yes, but only in streaks, not at all what we should expect with a hemorrhage into his lung or bronchus from the aneurysm itself. I am inclined to believe that the hemorrhage is connected with the aneurysm, but how I do not know.

A STUDENT: A mass in the right upper quadrant is mentioned.

DR. CABOT: Yes, but it disappears. That might have been a cirrhosis or syphilis of the liver, and either of those could be connected with the intestinal hemorrhage.

A STUDENT: Could enlargement of the glands in the retroperitoneum and abdomen explain the neuritis and possibly also the ascites?

DR. CABOT: It might explain the ascites, but I never heard of syphilitic glands appearing in the abdomen.

A STUDENT: What about Hodgkin's disease?

DR. CABOT: I did not think of that. But the striking thing is that he did not get the X-ray treatment always given for Hodgkin's. And then the only gland that appeared did not show it.

A STUDENT: Was the specimen taken at biopsy a gland?

DR. MALLORY: No, it was not.

DR. CABOT: If the surgeon could have found anything that was any more like a gland he would have taken it. That this patient should have gone to his death with a Hodgkin's disease and no one have taken out a gland does not seem like this hospital.

A STUDENT: Is it possible to have Hodgkin's in the mediastinum without showing glands?

DR. CABOT: I suppose it is, but the plates I have seen of Hodgkin's in the mediastinum have not looked like this.

A STUDENT: What do you think of the thickness of the thyroid isthmus?

DR. CABOT: I do not know what to think of it.

DR. MALLORY: I am going to give you a few comments made by Dr. Holmes. He felt that the lung process which remained essentially the same for a period of nearly four years until the final rapid extension was quite definitely not characteristic of malignancy, and that tuberculosis if present must have been an entirely healed process. In an active tuberculosis or in malignancy he would expect much more definite changes during the period that the patient was under observation.

A STUDENT: What other process besides tuberculosis will give cavitation?

DR. CABOT: Lung abscess from any cause. The commonest is the lung abscess that we get from foreign bodies, after a tonsil operation, all that sort of thing. You get big lung cavities in aneurysm. The pressure of the aneurysm often produces bronchiectasis with or without abscesses. I think they could be accounted for by "aneurysmal phthisis", that is, the process that comes on when an aneurysm has compressed the bronchus.

A STUDENT: Is gumma too rare to expect?

DR. CABOT: That has gone out of fashion altogether. I suppose it does occur, but they do not talk about it.

PATHOLOGICAL REPORT, SECOND ADMISSION

A small irregular fragment from the neck about the size of a cherry.

Microscopic examination shows an inflammatory process consisting of fibrosis and degeneration of the striated muscle.

X-RAY INTERPRETATIONS

Second admission. There is definite evidence of a pathological process which involves the apex of the right lung, the mediastinum and the pleura, and which causes displacement of the mediastinal contents to the affected side. It could be due either to tuberculosis or to metastatic malignant disease.

Third admission. The appearance is that of a pulmonary tuberculosis involving the right apex and infraclavicular margin with some fibrosing changes which displace the mediastinum. There is apparent increase in the width of the aorta which may be due to displacement. There is cavitation present.

Fifth admission. In view of the patient's history I believe the findings could be accounted for by syphilitic mediastinitis. From the chest film alone tuberculosis and new growth should also be considered. No definite evidence of carcinoma or ulcer.

Sixth admission. The findings may be of tuberculous origin, but I should favor the diagnosis of malignancy.

Note by cardiologist: The lateral views of the chest show an aorta not far from normal in size.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Tertiary lues.
Luetic infiltration of aorta.
Pulmonary tuberculosis?
Bronchopneumonia.
Cardiac asthma.
Hypertension.

DR. RICHARD C. CABOT'S DIAGNOSIS

Syphilitic disease with aneurysm.
Stenosis or compression of the right main bronchus.
Chronic pneumonitis of the right lung.
Terminal diffuse bronchopneumonia.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Organizing pneumonia.
Gumma of the liver.

2. *Secondary or terminal lesions.*

Hydrothorax, left.
Endarteritis.
Vascular nephritis, malignant type.
Degenerative changes of the cortical ganglion cells.

DR. MALLORY: I think a very large portion of this case will have to remain unexplained and undiagnosed. In a number of places, however, I can commit myself definitely, although some of the most important items are not suggested in the history.

There was an acute confluent bronchopneumonia throughout the entire left lung, and the right lung showed marked interstitial fibrosis with slight dilatation of the smaller bronchioles. On microscopic examination this appeared to be due to the remnants of an old organized pneumonia, as in many areas persistent alveoli containing plugs of fibrous tissue, obviously arising from organization of the fibrinous exudate, were still present. It is interesting that the relatively fresh pneumonia on the left side also showed early organization. The larynx was unfortunately not examined. The trachea and bronchi were free from scars. He had a slight fibrinous pericarditis, evidently a terminal thing of brief duration, a few hours or a day or two.

The heart was slightly hypertrophied, weighing 395 grams, and was negative except for signs of arteriosclerosis. There was no occlusion of the coronary arteries. The aorta showed fairly marked arteriosclerosis but no suggestion of syphilis.

The liver was the most remarkable post mortem finding. The right lobe was about 50 per cent larger than normal, and at first I thought there was no left lobe at all. On further examination we found a small scar less than 3 centimeters in diameter in the center of which was a mass of necrotic, firm, rubbery material. I think unquestionably it was a gumma of the liver.

The kidneys showed a fairly marked degree of arterial change, a fairly typical vascular nephritis.

The brain showed slight lymphocytic infiltration around the vessels which is consistent with lues but not sufficiently characteristic for a positive diagnosis. Sections of the cord with a Weigert stain were negative, ruling out the question of tabes.

The exact nature of the fibrous process in his left lung I think is open to some doubt. I think it could be explained by a previous attack of pneumonia which did not undergo resolution but organized instead, and there is a suggestion in the history five years before of a fairly severe attack of pneumonia. The question has been raised whether there might be a syphilis of the lung. I cannot say absolutely that it cannot be. On the other hand it is not the type of syphilis that we can recognize, and on the whole I think the other explanation is much simpler and more probable.

DR. CABOT: What is all that in the X-ray?

DR. MALLORY: Dr. Holmes on reviewing the case said the films could be explained by displacement and slight distortion.

DR. CABOT: Displacement due to contraction of the lung.

A STUDENT: Was there cavitation in the lung?

DR. MALLORY: No.

DR. CABOT: Nothing in the mediastinum?

DR. MALLORY: No, nothing but this displacement.

On reviewing the slide on the biopsy I think it is quite possible that that might be a syphilitic lesion in the muscle.

DR. CABOT: What about the hour-glass stomach?

DR. MALLORY: It did show slight contraction at the center, but the circumference was nowhere less than 15 centimeters. It was narrower about the middle than at either end, but hardly enough so, in my estimation, to be termed an hour-glass stomach. There were no evidences of any scar formation either in the muscularis or the mucosa.

A STUDENT: What about the hemorrhage?

DR. MALLORY: There is no explanation. He did have this attack of rather acute abdominal symptoms. Whether that possibly represents the actual period of formation of his gumma I do not know.

A STUDENT: And the thyroid isthmus?

DR. MALLORY: It was not examined.

DR. CABOT: Was there no malignant disease?

DR. MALLORY: There was no evidence of it.

DR. CABOT: All his respiratory symptoms and choking you interpret as being due to the chronic pneumonia in his right lung?

DR. MALLORY: No, I am doubtful about that, Dr. Cabot. We have suggestive evidence of a

syphilitic lesion in the muscles about the trachea. It is possible, I think, that he had a syphilitic lesion in the larynx, but we have no definite evidence of that.

A STUDENT: Did any glands show tuberculosis?

DR. MALLORY: No, nowhere at all. There was nothing in the retroperitoneal glands, nothing to explain the ascites.

DR. CABOT: Did he have ascites post mortem?

DR. MALLORY: No, sir.

A STUDENT: Did the liver show any inflammation?

DR. MALLORY: It showed complete atrophy of the left lobe and marked hyperplasia of the right lobe, nothing else.

A STUDENT: No spirochete or bacterial stains were done on the organ?

DR. MALLORY: No stain for spirochetes was done. There would be little possibility of its showing anything in a completely healed scar process. The acute pneumonia does show pneumococci.

CASE 15072

WHAT PART DID THE ENEMA TAKE IN THIS FATALITY?

SURGICAL DEPARTMENT

A married Canadian woman seventy-two years old entered December 30 through the Emergency Ward complaining of abdominal pain and distention with stoppage of the bowels of three days' duration.

Six months before admission she began to have a tendency toward increasing constipation and gradual loss of strength. Two months before admission she noticed bright red blood mixed with mucus in her stool. By this time she had lost about twenty pounds. A week before admission she found it difficult to move her bowels even with enemas. Three days before admission she began to have cramp-like pain across the lower abdomen with increasing distention. For twenty-four hours enemas had given no results either in gas or feces. For twelve hours she had had stercoraceous (?) vomiting.

No family history or past history was obtained.

Clinical examination showed a poorly nourished, very sick woman, complaining of abdominal distention and pain. Skin dry and inelastic. Tongue dry and coated. Breath foul (stercoraceous ?). Heart and lungs not recorded. Pulse very weak and rapid. Blood pressure not obtainable. Abdomen symmetrical, distended, tympanitic and acutely tender. No visible peristalsis. The patient was practically moribund. Rectal examination: about the level of the promontory of the sacrum was a hard, ulcerated, movable annular growth. The examination was followed by a discharge of fresh blood and mucus from the rectum.

No laboratory work was done. There is no record of temperature and pulse.

The patient was given 750 cubic centimeters of glucose in saline intravenously. The condition showed marked improvement. The pulse became stronger and the blood pressure was 110/60. The patient was taken to the amphitheater for operation, but died on the table before the incision was made.

DISCUSSION

BY WILLIAM M. SHEDDEN, M.D.

Blood (other than normal menstrual flow) issuing from any orifice of the body is comparable to a red traffic signal. It sometimes means that danger is imminent. It more often warns us to be cautious, to look over the field carefully and see why the signal was displayed.

Chute[1] studied a hundred consecutive cases of hematuria and found that in 64 per cent of them the blood was due to a new growth of some sort. Abnormalities of catamenia call for a careful examination to rule out neoplasm. Graves[2] says, "All metrorrhagia is pathologic and should be regarded in a serious light". Epistaxis occasionally means new growth of the nasal passages. Vomiting of blood calls for a study of the gastro-intestinal and respiratory tracts. The burden of proof is therefore always on the doctor who says to the patient, "Forget it, my dear sir or madam. That doesn't amount to anything".

Note that this patient had passed bright red blood by rectum two months before admission. In something over 300 cases of cancer of the rectum that we have been reviewing lately bleeding was the outstanding symptom, and in about 18 per cent. of these cases a diagnosis of simple hemorrhoids had been made *without the examiner putting a finger into the rectum.*

The first sentence of the patient's history gives us the probable diagnosis and treatment. Abdominal distention and pain accompanied by stoppage of the bowels of course suggests intestinal obstruction and probably low obstruction, for if it were high we should undoubtedly have been told that she had started vomiting a few hours, not two days, after the stoppage of the bowels. The fact that the pain is low also tends to suggest large gut obstruction. The fact that she is seventy-two suggests that the obstruction is caused by neoplasm, for she is well within the cancer age. Her age also demands that we employ the simplest therapy, in this case probably a colostomy.

It is interesting that her family would allow her to lose twenty pounds, observe the increasing constipation and the gradual loss of strength, without doing anything about it for six months.

As we should expect after a half year of

partial obstruction, she looked poorly nourished. Her dry skin and tongue go with her story of vomiting with its inevitable dehydration, for we see no mention that fluid was supplied by hypodermoclysis or rectally.

Have we something more than obstruction? Do her weak, rapid pulse, her zero blood pressure, her distended, acutely tender abdomen and the lack of visible peristalsis mean peritonitis?

The growth they felt was, on the law of chances, an adenocarcinoma. The examining finger caused free bleeding, suggesting polypoid projections which are so commonly seen in this type of growth and which are very friable.

The return of blood pressure after injection of fluid made it seem worth while to attempt a simple colostomy, though it was a desperate gamble.

The autopsy will tell us first whether she had peritonitis or not. About the only source of such peritonitis would be perforation at the level of the growth from necrosis of neoplasm, or just above it from the necrosis of obstruction. Secondly it will be of interest to know whether after six months of symptoms the growth has remained in and of the intestine or whether it has metastasized to the regional nodes or the liver, which would not surprise us, or elsewhere, which would surprise us considerably.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the rectum.
Acute intestinal obstruction.

DR. WILLIAM M. SHEDDEN'S DIAGNOSIS

Adenocarcinoma of the rectum.
Possibly peritonitis due to perforation.

ANATOMIC DIAGNOSES

Carcinoma of the rectum.
Perforation of the sigmoid colon.
General peritonitis.

DR. TRACY B. MALLORY: The autopsy of this case showed a greatly distended peritoneal cavity containing large amounts of gas and fluid and solid fecal material. The peritoneal surfaces were all injected and showed traces of fibrin. At the junction of the rectum and the sigmoid there was a linear tear of the bowel wall seven centimeters in length. The edges of this lesion did not appear necrotic and there was no gangrene of the bowel. Six centimeters below the lower end of the tear an induration of the wall of the rectum could be felt from without, and a finger passed into the lumen of the rectum met a stricture which would just admit its passage. Upon opening the bowel wall at this point an annular neoplasm encircling the rectum for a distance of four centimeters was found. Its margins were elevated and the central portion showed marked ulceration. The regional lymph nodes were not enlarged.

The remainder of the autopsy was essentially negative except for a slight hypertrophy of the heart, which weighed 400 grams, and an arteriosclerotic atrophy of the kidneys, which weighed only 150 grams. There was fairly extensive atheroma of the abdominal aorta. No metastases were discovered in any of the organs.

DR. SHEDDEN: The beginning of Dr. Mallory's report explains her distended, tender abdomen and her weak, rapid pulse and low blood pressure.

What caused that perforation? I have already suggested two possibilities. There is a third, a rather rare one with carcinoma of the rectum uncomplicated by diverticulae, namely perforation of an already weakened gut wall by a foreign body, in this case perhaps the tip of an enema tube, for the obstruction was by no means complete. Although there was no actual necrosis of gut found at the point of perforation, yet we know that intestine subjected to constant back pressure and stagnation of its contents has a lowered resistance. A few months ago I was asked to see a woman who had a sigmoid perforated above a rectal growth after a barium enema, and I was assured by the roentgenologist that the tip of the enema tube had not been within several inches of the area of perforation. As suggested above, a diverticulum of the gut is itself an area of lowered resistance often infected, and it is not uncommon to have these spontaneously perforate.

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SIXTY-FOURTH ANNUAL REPORT OF THE TRUSTEES OF THE BOSTON CITY HOSPITAL

(JANUARY 1, 1927—DECEMBER 31, 1928)

A REVIEW of the Trustees' Report of the sixty-fourth year of the Boston City Hospital impresses one because of the aggressive and forward-looking spirit which apparently pervades the policy of those in charge of the institution. On December 1, 1927, the new wings of the Nurses' Home were completed. It is only necessary to refer to the new swimming pool to give an idea of the pains which have been taken to provide for the comfort and welfare of the girls who bear so large a part of the burden of hospital care.

The formal opening of the new Gynaecological and Obstetrical Building was held on March 4, 1927. $60,000 has been appropriated for the erection of a new Surgical Building. Alterations and additions to the power plant are under way. A House Officers' Building is being erected at a cost of $462,000.

The reports of the various departments reflect this spirit of growth and productiveness. In the Out-patient department the adoption of an appointment system for patients has resulted in a higher standard of medical attention. Follow-up clinics have been established, and an economic survey of all new out-patients was started in December, 1927.

With the appointment of Doctor Mallory as Professor of Pathology at the Harvard Medical School the City Hospital Laboratory once more has become an active center of instruction. The Thorndike Memorial Laboratory, under the inspired leadership of the late Dr. Francis Peabody, has made notable contributions to our knowledge of various diseases.

The list of papers and addresses by members of the Hospital Staff is a long one, and contains a number of valuable communications.

As a record of things accomplished and as a promise of future achievement, this report of the Trustees is noteworthy.

MALPRACTICE AGAIN

ON January 14, 1929, there was held in Boston, an informal conference of physicians and others interested in the subject of medical malpractice, at which a committee was appointed to make representations concerning the situation, to the officers of the Massachusetts Medical Society and to the Council of that Society at its meeting in February, and to formulate a plan of procedure which might serve as a basis for discussion and perhaps for action.

As the subject is of widespread interest, and of deep concern to an increasing number of physicians, the matter should be discussed from every point of view before action is taken.

Ultimately there should be created in Massachusetts a new atmosphere, so clarifying the situation that a new point of view will prevail throughout the State. If a suit is brought alleging medical malpractice, it should be a concern first of all for the State Board of Registration. This Board has given a license to a person whom it considered competent in every way to practice medicine, and the charge is made against a person whom, in a sense, the Board has sponsored. The suit should be a matter of concern to the medical profession and to its representative organization or organizations, for they are interested in everything that pertains to the practice of medicine. This is true whether the alleged malpractitioner is or is not a member of such organization. The suit should be a matter of concern to the legal profession, and its representative organization, because a lawyer is always involved, and it is known that some lawyers have used malpractice suits as opportunities for unethical practices. The suit should be a matter of concern to insurance companies that write liability insurance in this State, whether the alleged malpractitioner is or is not one of their clients. It is to be hoped that the procedure developed will bring

about the co-öperation of these four groups of interested persons.

Publicity has certain wholesome influences. If every physician testifying in a malpractice suit knew that a stenographic report of his testimony was to be reviewed by the State Board of Registration or by a Committee of the Massachusetts Medical Society, that had the power to discipline him for unethical practices, he would be likely to stick closely to facts in his testimony, and to hold his imagination in check.

Every case of alleged malpractice involving a member of the Massachusetts Medical Society, should be within the province of the Committee on Ethics and Discipline, or some similar committee, for the allegation is always concerning improper practice. The decision of the court may involve just recompense for loss of time (from a culpable mistake by the physician) or financial salve for the patient's feelings. In any case it is for the Committee to decide whether ethical questions are involved.

These are but a few of the aspects of the serious problems arising in connection with the occurrence of malpractice suits in this State, which the Massachusetts Medical Society will be called upon formally to face. It is hoped that the committee will be able to make a comprehensive and convincing report.

THE POT AND THE KETTLE

Who would have thought that the appetite of the American people was so important as to start a war to the death between two great corporations? But it is; appetite for one thing or another, natural or acquired, inherent or artificially produced is the sine qua non for sales production, and sales production means good business. In the advertising pages and on the air we see and hear daily the attempts of manufacturers of this, that and the other thing, but mainly of luxuries, to create in the minds of the people an appetite for their products.

We have long protested against the health motif in advertising; we have protested against the propaganda of the California fruit growers, even if sanctioned by the American Medical Association, in their attempt, no doubt successful, to increase their sales on the basis of acidosis prevention; we have smiled at the billboard antics of a well-known producer of ginger ale who bases the excellence of his libation on its ripeness, comparing it, with more naïvete than logic, to a seasoned apple. We are now given the opportunity of laughing long and loudly at the health motif elaborated by the makers of a certain toasted cigarette, who, on the advice of 20,678 physicians—count them—would have us reach for a Lucky instead of a sweet.

The United Restaurant Owners' Association and the National Food Products Protective Committee, however, fail lamentably to see the point of the joke. With ears glued close to the ground we hear not even a chuckle from their camp. It is all right to try and produce an appetite that may not hitherto have existed; they all do it; but to try and substitute one appetite for another is not playing the game. They see an opportunity of being sorely wounded in the money bags, and the battle is on.

The present advertising policy of the American Tobacco Company is silly and trifling, but it has considerably more than a grain of logic as compared with its original serving of toasted applesauce. Toasted cigarettes are no better nor worse than any others. Any factor, however, which tends to curb the great American appetite for sweets deserves to be taken seriously, and the purveyors of pastries and chocolate creams, who know their onions, are taking it so.

We believe the bow they draw is rather long, however, when they base their complaint to the Federal Radio Commission on the ground that "the vicious propaganda broadcast through the air by certain cigarette interests (is) intended to turn 25,000,000 school boys and school girls into confirmed cigarette addicts."

Well, the battle is on, and when it's over, we venture to guess, the consumption of cigarettes will continue to increase and so will the diabetic rate in this self-indulgent nation, and as the old professor said, it will all be the same in a hundred years.

RESIGNATION OF DR. WALCOTT

It must have been with extreme regret that the trustees of the Massachusetts General Hospital accepted on February 6 the resignation of Dr. Henry P. Walcott from the presidency of the the hospital. This regret was indicated in the resolutions which were adopted: "Fortunate indeed the institution which for more than a third of a century can command the devoted interest of so distinguished a citizen".

Dr. Walcott, now honorary president of the hospital in his ninety-first year, has indeed been a distinguished citizen of Massachusetts, a courageous pioneer in the interests of public health and a devoted servant to Harvard University. An ex-president of the Massachusetts Medical Society, he was the first chairman of the Massachusetts Board of Health, at one time chairman of the Metropolitan Water Commission, and until recent years a Fellow of the Harvard Corporation. Comparatively few know of another line in which he has excelled—that of growing and breeding chrysanthemums—but it is always with a feeling of sympathetic interest that we learn of the pastimes and avocations of those whom we have come to respect in the sterner walks of life.

The Journal wishes this Nestor of our profession a long and happy life. He will always have what he long ago earned; the respect and good wishes of his fellows.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

DAVIS, LINCOLN. B.A., M.D. Harvard 1898. F.A.C.S. Chief of East Surgical Service, Massachusetts General Hospital. His subject is: "Reflux of Duodenal Contents Through the Common Bile Duct." Page 313. Address: 205 Beacon Street, Boston.

CARLETON, DUDLEY. M.D. Harvard 1895. F.A.C.S. Orthopedic Surgeon, Springfield Hospital 1900 to 1928. Surgeon, Springfield Hospital, 1903 to 1929. His subject is: "Non-Tuberculous Spondylitis." Page 320. Address: 20 Maple Street, Springfield, Mass.

JAMESON, JAMES W. A.B., M.D. College of Physicians and Surgeons, New York, 1905. F.A.C.S. Surgeon, Margaret Pillsbury General Hospital, Concord, N. H. Consulting Surgeon, Peterborough Hospital, Peterborough, N. H. Formerly on the Surgical Staff of the Presbyterian Hospital, New York City, and Instructor in Operative Surgery at College of Physicians and Surgeons, New York City. His subject is: "Preoperative Treatment." Page 326. Address: 48 Pleasant Street, Concord, N. H.

BOWLER, JOHN POLLARD. A.B, M.S., M.D. Harvard 1919. F.A.C.S. Dean, Dartmouth Medical School. Member Surgical Staff, Hitchcock Hospital, Hanover, N. H. Address: Hanover, N. H. Associated with him is:

BOARDMAN, JOHN J. M.D. University of Vermont, 1927. Member Staff, Hitchcock Hospital, Hanover, N. H. Address: Hanover, N. H. Their subject is: "Staphylococcus Septicemia with Metastatic Osteomyelitis." Page 327.

PALMER, ROBERT S. M.D. Harvard, 1925. Assistant in Medicine, Massachusetts General Hospital, Harvard Medical School. His subject is: "Oxygen Therapy in the Treatment of Pneumonia and Postoperative Pulmonary Complications." Page 330. Address: 264 Beacon Street, Boston.

CHADWICK, HENRY D. M.D. Harvard Medical School, 1895. Formerly Supt. of Vt. Sanatorium 1907 and 1908, Supt. Westfield State Sanatorium since 1909. Formerly Acting Director of Division of Tuberculosis of Massachusetts Dept. of Public Health (1926). Address: Westfield, Mass. Associated with him is:

ZACKS, DAVID. M.D. Tufts, 1920. Assistant Director Division of Tuberculosis. Address: Division of Tuberculosis, Room 6, State House, Boston, Mass. Their subject is: "The Incidence of Tuberculous Infection in School Children." Page 332.

MASSACHUSETTS LEGISLATIVE NOTES

THE following statement has been sent to every Fellow of the Massachusetts Medical Society:

A Bill (Senate 225) is before the Legislature for the examination and registration of those who desire to practice the healing art by a particular method known as Chiropractic. In order to consider intelligently the merits of this proposal it is necessary to review briefly the history of the registration of physicians and the reasons for any registration at all.

At its foundation in 1781 the Commonwealth granted to the Massachusetts Medical Society the authority to certify to the competence of physicians. For some years the Society did this but as the State grew this function gradually lapsed so that up to 1894 when the Board of Registration in Medicine was established there was practically no control over those who would treat the sick, except that provided by law for protection against any form of crime or fraud. The result was that all sorts of healers found Massachusetts a haven of refuge because other States had been establishing standards for medical practice which were gradually eliminating quacks from within their borders. The law as enacted protected the vested rights of those already in practice in the State and carefully guarded against sectarianism by the provision that of the seven members of the Board, a majority should not belong to any one legally chartered medical society. This insured representation to the Massachusetts Medical Society, to the Massachusetts Homeopathic Medical Society, and to the Eclectic Society which at that time represented the various sects in medicine at a time when sectarianism made very powerful lines of cleavage. These provisions of the law are still in force and for some years the Osteopaths have been represented on the Board. In fact of recent years the Secretary of the Board, who is chosen by the members, has been an osteopath. If it still exists the Eclectic Society meantime has become inactive. The Board functions harmoniously because it recognizes that its main purpose is to safeguard the public by determining the fitness of those who would treat the sick. It does this by testing their knowledge of how the human body is put together and how it functions in health and in disease. The Board never has and it is earnestly hoped never will undertake in any way to prescribe or limit the methods of treatment to be employed in any given case. If this is ever done it will at once check medical progress. Physicians the world over are constantly seeking new methods whereby patients may be relieved or cured of their ailments. It is needless to point out the readiness with which new ideas are adopted.

Many diseases are now prevented. Others which but a few years ago took their toll of lives are now curable by specific remedies. Smallpox, typhoid fever, yellow fever, malaria, diphtheria, scarlet fever, syphilis, cerebro-spinal meningitis, appendicitis, tuberculosis, the diarrhoeal diseases of infancy are but a few of the diseases now robbed of their terrors. The average duration of life has been greatly lengthened in the last generation so that many more than formerly now reach an age in which they are subject to cancer and the degenerative diseases. Medical science is concentrating its efforts to prevent and control these conditions and in some ways with marked success.

It is evident that medicine today is a very complex study and that those who would guide the health of

the individual and of the commonwealth and prevent, alleviate or cure disease must have a broad knowledge and be able to call upon all the resources available. Furthermore physicians recognize that they cannot do their work without aid from others. Not only are they allied with the dental and nursing professions but of recent years, inspired by the success of the efforts to combat tuberculosis through lay organizations, similar bodies have been formed to aid in the fight against other diseases.

Our health organizations, Federal, State and local are very different bodies from what they were a few years ago. Life, accident and health insurance companies are taking an active interest in caring for the welfare of their clients. Our vital statistics have become of value in combating disease. The duty placed upon the Board of Registration in Medicine is to determine the fitness of those who in one way or another must be the leaders in this great campaign. It is no wonder that sectarianism has sunk into the background in the work of the Board. The requirement of broad knowledge and the ability to apply it leave no time for discussions of sects, cults and dogmas. A fair field is open for all who can demonstrate fitness.

Yet in the face of these facts a group of individuals who wish to treat disease by a particular method of manipulating the spine come froward to ask for special privileges. A short generation ago the Osteopaths sought the same special privileges. They were told that they had the same rights as others to practice the healing art after they had met the same requirements of demonstrated fitness. The officers of the Osteopathic Society have appeared of recent years at hearings at the State House in advocacy of maintaining this single standard of fitness. Nothing whatever prevents anybody using chiropractic methods provided he demonstrates the possession of the same degree of fitness that is required of all who would practice the healing art. It is proposed that special privileges be granted to treat the sick to those trained in a relatively short course dealing specially with a particular form of manipulation. It seems incredible that at the present time such a proposal should be seriously entertained. In the past other cults have asked special favors and unless human nature changes countless other cults will in the future demand recognition. History shows that cults rise and fall. The medical profession is eager to seize upon and apply all valuable therapeutic agents or practices.

In some respects Massachusetts has a high requirement for the practice of the healing art in that it sets a single standard. The individual must be well grounded in the fundamentals. Then he may treat disease as his conscience dictates. There should be no short cut or side door for the poorly educated practitioner.

There is but one question before the Legislature. It is whether our laws for registration of those who would practice the healing art shall treat all alike or shall grant special privileges to some. In deciding this question the Legislators must keep in mind that if they grant special favors to a particular group professedly treating the sick by one method they endanger the work which has been done in so many ways to safeguard the Commonwealth.

For this reason it is the duty of physicians entirely aside from any motives of self-interest to ask that all who would practice the healing art be treated alike, that all demonstrate the standard of fitness required at present. With this maintained no restrictions should be placed upon methods of treatment.

JOHN M. BIRNIE, M.D., *Chairman.*
SHIELDS WARREN, M.D., *Secretary.*

An abstract of the bill (Senate 225) was printed in the JOURNAL of January 31, page 252. Unfortunately in this abstract by a typographical error the word subluxation was made to read sublimation.

The hearing on the bill is set for February 20 at 10:30 A. M. before the Committee on State Administration.

The outcome in the Legislature will to a great extent depend upon whether the physicians and others interested in health matters take enough interest to explain the reasonableness and wisdom and need of having an adequate and uniform standard of fitness for all who would practice the healing art.

If the public interest is to be served by allowing the sick to be treated by those trained in one avowedly limited method then there is no reason why this bill and other bills granting similar special privileges to other cults should not be passed.

Our various lay health organizations may feel that it is wise to maintain adequate standards of fundamental knowledge. Possibly the trustees of hospitals may be of the same mind.

The question is solely whether special privileges are to be granted to a cult treating the sick by a particular method.

The physicians of the State must take the lead in their various communities in making the issue plain.

THE VACCINATION HEARING

ON February 4 the Committee on Public Health held a hearing on the bill to extend compulsory vaccination to children attending private schools.

On previous similar occasions the Auditorium has been packed with the opponents of this bill. This year a small room was partly filled, chiefly by the proponents of the measure.

This lack of opposition in the hearing cannot be considered to mean that everybody has been persuaded that after all compulsory vaccination of all school children is a wise plan. The probability is that under our Constitution there will be a petition for a referendum. In other words the opponents of vaccination realize that Dr. Woodward by his enthusiasm, his persistence and his logic has educated the Legislators to a point where his opponents fear to leave the issue with the chosen representatives of the people.

The anti-vaccinationists prefer now to trust to a popular vote knowing full well that all of their group will take an active interest against vaccination and trusting that the vast bulk of voters will be indifferent. Our amended Constitution discrediting representative democracy provides this method by which questions of public policy may be decided. There is no question but that a vast majority of the public believe in vaccination. There is no question either that a vast majority of the voters do not wish to be bothered about questions of public policy unless upon a matter of outstanding importance about

which they are so well informed as to have clearly defined opinions.

Our health officials urge vaccination of all school children. By their efforts and by their vigilance at the time of a threatened epidemic they deprive the public of the education through experience which is the great teacher of the voter. This the anti-vaccinationists well know and of this they will probably take advantage.

Nevertheless it will be the duty of the physicians of the State to enter upon a campaign of popular education if the task is thrust upon them. There is every reason to hope their efforts may be successful. If they fail then the public must be taught by bitter experience. In times past they have learned in that way. Modern educational methods may have changed conditions but the radio is available to all and the voice of the fanatic and charlatan is often hard to distinguish from the voice of the greatest authority upon any topic.

At the hearing Dr. Woodward presented the argument printed in the JOURNAL of last week. Dr. George H. Bigelow and Dr. Scamman of the State Department of Health, Dr. Birnie, President of the Massachusetts Medical Society, Dr. Bailey of the Boston Board of Health, Mr. George J. McGrath of Salem, President of the Association of Boards of Health, Dr. M. J. Rosenau of the Harvard Medical School, Dr. H. H. Trowbridge of the Worcester Board of Health, Dr. F. G. Curtis of Newton, Dr. George A. Moore of Brockton and Dr. Benjamin White all favored the bill. Numerous Representatives were recorded in favor of the bill. Four Representatives opposed it.

MISCELLANY

TUBERCULOSIS ABSTRACTS

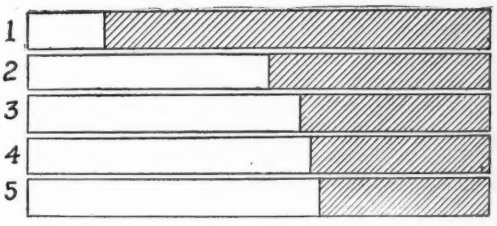
Osler, in his "Practice of Medicine," invariably gave generous space and careful thought to the subheading, "Prophylaxis." The several measures a tuberculosis patient should carry out for his own recovery and for the protection of others are well understood and of obvious purpose. Experience, however, shows that sufficient attention is not yet given to the careful instruction of the patient. There is still evident delay in making a definite diagnosis, delay by the patient in seeking medical advice, delay in deciding to accept treatment, delay in obtaining sanatorium treatment for lack of a bed or other reasons, and insufficient training in health habits looking toward both cure and prevention.

In an effort to ascertain the influence of these several factors, 1,500 patients in sanatoria were personally interviewed by physicians. A brief summary of certain conditions, based on a study of these interviews, is herewith presented.

TUBERCULOSIS PATIENTS INTERVIEWED

All the patients interviewed were at least fifteen years of age and all had pulmonary tuberculosis at the time they entered the sanatorium. All but three of the 1,500 patients had consulted from one to fourteen physicians each. The interview covered symptoms of the illness; the reason for the first consultation of a physician; the various types of physicians (i.e., general practitioner, tuberculosis specialist, throat specialist, tuberculosis clinic physician) consulted by each patient; the extent of the examination given; the resulting diagnosis; the

HOW 1,500 TUBERCULOUS PATIENTS WERE ADVISED BY THEIR PHYSICIANS



1. 17% were given printed instructions.
2. 53% were told to use only their own dishes.
3. 58% were told how to dispose of sputum.
4. 61% were advised what sleeping arrangements to make.
5. 63% were instructed to sleep alone.

length of time elapsing between the appearance of the first symptom and the first consultation; the first consultation and the diagnosis; the time between the effort to obtain admission to the sanatorium and the actual admission; the number of nursing visits, and numerous other items.

Four questions, relating to preventive medicine, to be answered for each physician consulted were asked each patient; namely, "Did physician instruct patient as to disposal of sputum?"—"Use of separate dishes?"—"Washing dishes separately?"—"Sleeping alone?"

DISPOSAL OF SPUTUM

What are patients told about the disposal of sputum? Of the patients who had consulted physicians, 625, or 42 per cent. of them, had never been told by any physician how to dispose of their sputum. (Only a small number were physicians or nurses, who were supposed to know what precautionary measures to take.) Of the 871 patients given definite instruction about sputum disposal, 677 first received it from the physician who first told the patient that his illness was tuberculosis, 107 from the second physician, and 24 others by physicians still further removed from the one making the original diagnosis of the patient.

CARE OF DISHES

Only about 53 per cent. of patients were told by any physician consulted that they should keep their dishes apart from those used by other members of their households, and about the same per cent. that their dishes should be washed separately.

SLEEPING ARRANGEMENTS

Advice to sleep alone was given to 63 per cent. of all patients by some physician, more receiving instruction on this particular point than on any other preventive measure. However, only 61 per cent. were advised as to other sleeping arrangements, such as instruction in regard to ventilation, etc. Good sleeping arrangements come under treatment rather than prevention, but the answers to the question regarding them have a bearing on the answers to

the question as to sleeping alone. Taken together, they indicate that the thought of preventing infection was not always in the physician's mind when he advised his patient to sleep by himself. Of the 945 patients who were told to sleep alone and of the 919 who received advice as to other sleeping arrangements, 11 per cent. and 12 per cent., respectively, were so instructed by a physician seen prior to the one who told the patient that he had tuberculosis.

WARNING THE PATIENT WITH SUSPICIOUS SYMPTOMS

For instruction in preventive measures, prior to telling the patient that he had tuberculosis, two reasons seem apparent. Certain physicians had the welfare of others sufficiently in mind to tell their patients to exercise sanitary precautions even though a diagnosis of tuberculosis was not yet established. Others, and probably the larger number, failed to acquaint the patient with the diagnosis, yet felt impelled to impart a certain amount of public health information.

A fact worthy of comment is that proportionately fewer patients, who were able to have private sanatorium care, had received instruction from their physicians prior to admission, than had those admitted to public sanatoria. This was the case with respect to each one of the items above.

Considering the group as a whole, it was evident that the more advanced the stage of the disease at the time of the patient's first admission to a sanatorium, the more likely he was to have previously received instruction respecting the several preventive measures.

EDUCATION AND INSTRUCTION

Education is perhaps the most effective public health measure for the prevention of tuberculosis. It also is a potent agent of cure. Oral instruction alone is often relied upon to accomplish the education. But the spoken word should be supplemented by written instructions. Most sanatoria provide the patient with a booklet containing the necessary advice and rules of conduct. Some private physicians, realizing the value of printed instructions, supply the new tuberculosis patient with a printed instruction book to guide him.

Each of the 1,500 patients who were interviewed was asked if printed instructions had been given him by any physician consulted, though no attempt was made to go into the detail of such instructions. Seventeen per cent. replied in the affirmative. The best record of this score was shown by patients reported by one county sanatorium, 45 per cent. of whom had received printed instructions from some physician prior to their admission.

The histories of this group reveal that instruction given to tuberculosis patients by physicians is not especially related to any one factor. Some of the physicians who did give instruction stressed one point to the exclusion of others; some, another. In view of the fact that the average physician sees only a few cases of active tuberculosis in the course of a year, he cannot be expected always to be a perfect instrument for the dissemination of advice to the patient. This study would indicate that the medical profession as a whole gives insufficient thought to the personal instruction of the tuberculosis patient.—*Special Study, National Tuberculosis Association.*

THE YEAR IN RETROSPECT

There has been an immense amount of writing on the subject of tuberculosis during this past year. Interest in diagnosis has been awakened by the Early Diagnosis Campaign, conducted by the tuberculosis associations last spring. Fewer so-called specifics have been brought forth; the question of "hilum" tuberculosis is still a matter of dispute as to diagnosis, though not so as to treatment. Ultra-violet ray medication has reached a point where a curb is sadly needed, while the after-care of consumptives by means of work shops, placement organizations, etc., is being recognized as an essential factor in treatment. The interest of the general practitioner in tuberculosis work is apparently on the increase, which in itself is a sign of real progress.—*Progress in Tuberculosis*, John B. Hawes, 2nd, M.D., NEW ENGLAND JOURNAL OF MEDICINE, Nov. 1, 1928.

A Profitable Pottery Industry, Developed by Patients at a California Sanatorium

WHAT WE ASK OF MEDICAL SCIENCE

The very great reduction in the death rate during the last fifty years often leads us to overlook the fact that medical science still fails to help us in dealing with a number of important causes of death. A brief survey of the chief unsolved problems may not only be of interest, but may be of value in arousing attention to the need of concerted efforts toward their solution.

Cancer: This now constitutes one of the most important problems demanding attention. Despite a vast amount of research, medical science has as yet given us little to prevent or cure this disease, whose death-toll amounts to over 7000 lives annually in the City of New York, and appears to be increasing.

Bright's Disease: Though less frequent as a cause of death than formerly, in this city Bright's disease is still charged annually with between 3,000 and 4,000 deaths. Medical science has not yet disclosed the cause of the condition, nor has it provided any specific cure or preventive.

Chronic Heart Disease: Steadily increasing as the recorded cause of death, chronic heart disease is charged with over 15,000 deaths in this city annually. Medical science has made but little headway in disclosing the cause and nature of this disease, and has failed to provide any cure or even an effective preventive. As a matter of fact chronic heart disease, Bright's disease and arterio-sclerosis, should be considered as one problem, for they con-

stitute a group conveniently designated as the "degenerative diseases" which embraces about one-quarter of the deaths from all causes.

Diabetes: The work of Allen and Banting has helped greatly in managing cases of diabetes, but medical science still needs to furnish an effective preventive and a real cure of the disease. Diabetes causes about 1400 deaths annually in this city.

Tuberculosis: A disease regularly responsible for about 5,000 deaths in this city annually cannot be said to be under control. Medical science has as yet devised no specific cure for the disease. It is to be hoped that Calmette's method of immunizing young infants will stand the test of time and prove to be a safe and effective means to prevent the development of infection.

Pneumonia: This disease claims nearly 10,000 deaths as its yearly toll in New York City. The advances made in serum therapy hold out the hope that some of the deaths may be prevented. Medical science should attempt to devise a method of immunizing against this infection, but the prospects along this line are poor. Chemotherapy has not fulfilled the high hopes once held out for it in the treatment of this disease.

Streptococcus Infections: These infections are still a serious health problem. What has been said under pneumonia is largely applicable here.

Influenza: We know nothing as to the essential cause of this infection and have no effective methods of prevention or cure. It is a most important problem for medical science. Let us hope that its solution will not be long postponed, for the number of deaths charged to influenza in this city ranges between 600 and 1200 annually. During the epidemic of 1918 they numbered 12,562.

Measles: Regularly, almost every alternate year, some 700 children die in this city because of measles. Medical science must devise an effective method of immunizing against this infection, for other prophylactic measures are of little aid in dealing with the disease. A therapeutic agent, to cure the infection and prevent the development of pneumonia, would be a great help.

Whooping Cough: This disease causes between 200 and 300 deaths annually in New York City. It is not readily amenable to ordinary control methods and therefore demands of medical science an efficient method of immunizing young children, and also an effective method of treating the infection.

Scarlet Fever: Although apparently growing milder from year to year, scarlet fever still causes about 100 deaths a year in this city. It is possible that the recent work on the hemolytic streptococci will furnish the means of treating and preventing the disease.

Diphtheria: In this disease we must admit that medical science has given us all that is necessary to wipe it out completely. That there are still some 15,000 cases and over 700 deaths annually in the City of New York is due entirely to the failure to apply the wealth of information at our disposal. We must immunize all young children with toxin-antitoxin and make this practice as general as smallpox vaccination is now.

Epidemic Meningitis: The specific serum for this disease reduces the case fatality considerably, but even cases so treated show a fatality-rate of about 30 per cent. Medical science has still much to do before this disease can be satisfactorily controlled.

Epidemic Encephalitis: This is a virgin field for medical science. It must discover the nature of the disease, its cause, prevention and cure. At present we are helpless in dealing with the condition.

Poliomyelitis: This, too, may be considered virgin soil. Despite intensive studies in all parts of the world, we are still ignorant of the cause of the infection or its mode of spread. We have no effective preventive or cure.

Syphilis: Our failure completely to eradicate syphilis cannot be charged to any failure on the part of medical science. It has furnished us with exact information regarding the infecting agent, its mode of spread, the diagnosis of the infection, and an effective method of prevention and treatment. Much has already been accomplished, but much still remains to be done.

Gonorrhoea: In this disease we look to medical science for effective methods of treating the infection, or what would be still better, some method of bringing about immunity to infection. Gonorrhoea is one of the most important problems confronting us. It is the cause of a large amount of sterility both in men and women, is responsible for about 75 per cent. of all gynecological operations, and produces a large amount of invalidism, especially in women.

Typhoid Fever: This disease has been very largely controlled by sanitary measures directed against water supplies, milk and shellfish. However, medical science must still find a way to deal effectively with bacillus carriers. The disease is responsible for about 100 to 150 deaths in New York City annually.

It is difficult to conceive of greater blessings to mankind than would be furnished by satisfactory answers to some of the important problems here summarized. Where is the new Jenner or Pasteur or Reed or Ehrlich to lead the way?—*Bulletin of the New York City Department of Health.*

THE HEALTH PROGRAM OF THE COMMONWEALTH FUND

Appropriations totalling $2,083,621.80 were made by the Commonwealth Fund last year in furthering a wide range of public health, mental hygiene, child welfare, and educational activities, according to its tenth annual report made public today. Eight major enterprises administered by the Fund through its several divisions and committees received $1,675,191.45 during the fiscal year ending September 30, 1928, while the remainder, $408,430.35, was distributed among forty outside organizations, hospitals, and universities in the form of grants for special purposes.

The fellowships for British graduate students in American universities, one of the principal projects of the Fund, received appropriations totalling $198,150 for the year. There are now fifty-one fellows studying at seventeen colleges and universities, making eighty-five in all who have spent or are spending a two-year period of study and travel in this country since 1925, when the fellowship program was established. Commenting on the three years of experience in this undertaking, Barry C. Smith, general director of the fund, says "it is clear, even after so brief a period, that through these fellowships a high type of British youth is eagerly accepting the opportunity not only for scholarly attainment, but also for securing a knowledge and understanding of American people and of American life which

cannot fail to increase, however gradually, the good feeling between the two nations."

Modern fifty-bed hospitals have been awarded to five communities since the beginning of the Fund's rural hospital program, for which $358,438 was appropriated during the year. The first of these was opened in Farmville, Virginia in November, 1927. The institutions in Glasgow, Kentucky, and Farmington, Maine will be completed this spring, and those in Beloit, Kansas, and Wauseon, Ohio will probably be opened before the end of 1929. "The rural hospital program", says the report, "is an experiment in social organization involving much more than a building project; it is an effort to attack from a fresh angle the difficult problem of medical and public health service in small towns and the open country, and to change community standards in respect to the care of the sick, the prevention of disease and the protection of health." Typical of the general program is the work now going on in the district of nine Virginia counties served by the Farmville Hospital. The State Health Department has organized this territory into a single unit with a district health officer, under whose leadership a comprehensive health service is being gradually developed. Two medical institutes have been held, with clinical demonstrations and lectures on chosen topics. Ten local physicians have been awarded fellowships for brief post-graduate courses at well-known medical centers. The hospital itself is proving its usefulness to the community and has been operated under the direction of the local Board of Trustees on a gratifyingly high standard. As with all hospitals constructed under the Fund's coöperative program, a third of the cost of the building and equipment and the entire expense of administration has been assumed by the local community.

Experience in carrying on for the past six years a program for the development of child guidance clinics and visiting teacher service in the public schools has brought the conviction that the greatest present need in this field is the adequate training of sufficient personnel. The Fund's chief contribution toward meeting this need has been the Institute of Child Guidance, opened in New York City July 1, 1927, and now in its second year of operation as a clinic and training center. The student group now includes seven psychiatrists, five psychologists, and forty-four psychiatric social workers who are specializing in work with children. Continued support has also been given to the Division on Community Clinics of the National Committee for Mental Hygiene, which has assisted in the organization of thirteen clinics, including a new one in Charleston, S. C. and a state clinical service in Virginia; and to the National Committee on Visiting Teachers, under whose auspices training centers have been established in New York and Chicago, ten scholarships have been awarded, and eleven summer courses in the theory and practice of visiting teacher work have been given at various universities. Appropriations covering all forms of mental hygiene work for a period of nineteen months totalled $568,779.45.

For several years the Fund has assisted in a program for the development of child guidance clinic work in England. A period of careful study of plans, and many visits by prominent professional workers to study American methods in this field resulted in a decision by the Child Guidance Council of Great Britain to establish a special service and training clinic in London for this field of activity. Official approval has been obtained from the London County Council making possible close working relationship with the London school system. This clinic will be opened in the spring of 1929 under the auspices of the Council, of which Sir Humphrey Rolleston is chairman. During the past year the Council has sent five social workers on Commonwealth Fund fellowships to this country for training along mental hygiene lines, and has fostered observational trips by a number of persons.

The program of five-year demonstrations of child health work which the Fund undertook in four American communities is drawing to a close. The work in Fargo, North Dakota, was completed at the end of 1927 and full reports of the results have been published during the past year. The demonstrations in Rutherford County, Tennessee, and in Athens and Clarke County, Georgia, ended in December 1928. The work in Marion County, Oregon, is entering upon its final year. Local appropriations and arrangements for carrying on all essential activities at their own expense have been made in these communities. In Rutherford County, particularly, the reports find "an outstanding example of the possibilities in public health created in a rural community by an awakened public conscience". The total appropriations for the child health program last year were $229,587.84.

On July 1, 1929 the Fund expects to complete the program of child welfare and public health work in Austria which it took over in 1921. The various child health stations will be continued by the Austrian authorities, a new emphasis is being placed upon the adequate training of personnel, and the whole program promises to be successful beyond the hopes that were entertained when the work was begun.

The death of Dean Hall of the University of Chicago Law School has made necessary a reorganization of the Fund's Legal Research Committee. George Welwood Murray, one of the Directors of the Fund has become chairman, and two new members, Dean Young B. Smith of Columbia University Law School and Dean Henry M. Bates of the University of Michigan Law School, have been added to the Committee. The outstanding accomplishment of the year has been the publication, under the auspices of the Committee, of Professor Ernst Freund's notable book "Administrative Powers over Persons and Property".

Among the forty-three special grants made by the Fund for public health, mental hygiene, and miscellaneous welfare projects during the year the following may be noted: $22,500 to the American Public Health Association for the study of public health programs in rural areas; $117,000 for fellowships in psychiatry at the Boston Psychopathic Hospital, the Henry Phipps Psychiatric Clinic at Baltimore, and the University of Colorado Medical School; $16,500 to the National Conference of Catholic Charities for a study of child caring homes; $12,500 to the Boy Scouts of America for a study of the effects of scout work in a number of American cities; $7,500 to the New York Tuberculosis and Health Association for cardiac research; and $10,000 to the American Forestry Association for a program of education looking toward the conservation of forest resources in three Southern states.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT
WITH 1927 AND SEVEN YEAR AVERAGE
MONTH ENDING JANUARY 19

	Wk. ending Dec. 29-28	Wk. ending Jan. 5-29	Wk. ending Jan. 12-29	Wk. ending Jan. 19-29	Average cases reported for week corresponding to Jan. 19 for past seven years.	Wk. ending Dec. 31-27	Wk. ending Jan. 7-28	Wk. ending Jan. 14-28	Wk. ending Jan. 21-28
Actinomycosis	-	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-	-
Botulism	-	-	-	-	-	-	-	-	-
Cerebrospinal Men.	2	-	2	2	-	1	-	-	1
Chickenpox	77	165	153	75	108	61	169	152	97
Conjunctivitis Inf.	-	-	1	-	4	-	-	-	3
Diptheria	33	28	30	34	50	40	44	44	27
Dysentery Amoebic	-	-	-	-	-	-	-	-	-
Dysentery Bacillary	-	-	-	-	-	-	-	-	-
Encephalitis Epid.	1	-	-	-	-	-	1	-	1
Favus	-	-	-	-	-	-	-	-	-
German Measles	13	22	78	21	9	1	4	5	1
Hookworm Infection	-	-	-	-	-	-	-	-	-
Influenza	297	790	2079	3359	14	12	7	3	2
Leprosy	-	-	-	-	-	-	-	-	-
Malaria	-	-	-	-	-	-	-	-	-
Measles	269	420	390	283	281	55	71	142	139
Mumps	61	113	68	134	52	25	36	88	140
Paratyphoid Fever	-	-	-	-	-	-	-	1	1
Pneumonia (Broncho)*	33	58	71	109	43	27	40	35	27
Pneumonia (Lobar)	42	77	95	118	45	48	54	66	57
Poliomyelitis	1	-	-	1	-	-	-	-	1
Scarlet Fever	50	46	50	56	123	75	78	112	149
Septic Sore Throat	1	4	4	1	-	3	3	3	-
Smallpox	-	-	-	-	9	1	26	53	21
Tetanus	-	-	1	1	-	-	-	1	-
Trachoma	-	-	1	-	-	-	-	-	-
Trichinosis	-	-	-	-	-	-	-	-	-
Tuberculosis (Pul.)	19	42	22	27	29	29	22	20	21
Tuberculosis (O.F.)	3	3	-	1	4	4	-	1	2
Typhoid Fever	1	-	-	-	3	-	1	3	2
Tularemia**	-	-	-	-	-	-	-	-	-
Typhus Fever	-	-	-	-	-	-	-	-	-
Undulant Fever	-	-	-	-	-	-	-	-	-
Whooping Cough	26	21	52	30	72	75	83	120	130
Gonorrhoea	36	38	21	20	13	43	17	93	20
Syphilis	31	48	30	34	31	34	3	59	18

* Made reportable January 1, 1925.
** Made reportable July 1, 1928.
Remarks: No cases of Asiatic cholera, glanders, plague, rabies in humans and yellow fever during the past seven years.

CORRESPONDENCE

OFFICIAL ACTIONS BY THE BOARD OF REGISTRATION IN MEDICINE

At a meeting of the Board of Registration in Medicine held February 7, 1929, the following cases were taken up:

Dr. Isadore Green—placed on probation for one year.

Dr. Aaron W. Reibstein—certificate of registration restored.

Dr. Andreas F. Christian—no action taken.

Dr. Walter D. Shurtleff—certificate of registration revoked.

Dr. Nerses M. Baghdoyan—case dismissed.

FRANK M. VAUGHAN, M.D., *Secretary.*

A SUGGESTION ABOUT PUBLIC MEDICAL LECTURES

Editor of NEW ENGLAND JOURNAL OF MEDICINE:

Controversial subjects of a medical nature should not be presented at Sunday afternoon lectures given to the public for the general good. If we do not look carefully, very soon in the public parks with a soap box we will be discussing O.D.P.s or adolescent acne.

Yours truly,

FRED R. WILLIAMS, M.D.

AN ANNOUNCEMENT AND REQUEST

Boston, Massachusetts.

To the Physicians of Boston:

Much progress has been made in Boston in the reduction of infant mortality during the past fifteen years. One hundred and twenty-five babies out of every thousand born in the City fifteen years ago died during the first year of life. Only seventy-five died out of every thousand born in 1928. This means an annual life saving of almost one thousand lives a year in Boston in this group alone.

Contrary to this achievement, deaths from prematurity, and injuries at birth, and stillbirths have not decreased and in some instances have increased.

This is not a situation peculiar to Boston for throughout the country these figures have shown resistance to reduction, if not an actual increase, so that we must seek an explanation in the problems concerned rather than in local customs. But an increasing interest is being shown by Physicians, Health Officers and Health Agencies in the problems of pregnancy and labor; and Boston is anxious to contribute to the knowledge of the causes of early infant deaths, and to be the first city to show a marked reduction in their number.

With this end in view, the Health Commissioner of Boston, the Boston Health League, the Obstetrical and Pediatric Departments of Harvard, Tufts and Boston University Medical Schools are co-operating with the Harvard School of Public Health in an intensive study of the deaths in these groups occurring in the City during this year. Dr. Harold C. Stuart of the Harvard School of Public Health will conduct this study.

Every physician reporting a stillbirth, or an early infant death, will be asked to co-öperate to the extent of giving the necessary information, either in return letters or at interviews; and the success of the undertaking will be in large measure dependent upon the interest and care exhibited in providing this information. It should be thoroughly understood that the attention of the investigators is to be directed toward a more thorough understanding of underlying causes associated with the life and habits of pregnant women, the course and management of pregnancy and labor, and our general obstetrical customs and procedures. It is not intended in any sense of the word to pass judgment upon the procedures or results of individual physicians.

The undersigned earnestly request your fullest possible co-öperation with Dr. Stuart in this important investigation.

Signed by

CHARLES F. WILINSKY, M.D.,
Boston Health League.
RICHARD M. SMITH, M.D.,
Harvard School of Public Health.
A. K. PAINE, M.D.,
Tufts Medical School.
FRANKLIN S. NEWELL, M.D.,
Harvard Medical School.
WM. R. P. EMERSON, M.D.,
Tufts Medical School.
K. D. BLACKFAN, M.D.,
Harvard Medical School.
ORVILLE CHADWELL, M.D.,
Boston University Medical School.
EDWIN P. RUGGLES, M.D.,
Boston University Medical School.

BOSTON DEATH RATES RELATING TO INFANT MORTALITY

Year	Infant Mortality	Injuries at Birth	Premature Births
1910	126.7	116*	369*
1915	103.7	108	358
1920	100.8	119	300
1925	85.1	127	367
1927	76.3	136	361

*This figure is for 1912 rather than 1910.

While the Infant Mortality rate has come down appreciably, deaths from Prematurity and Injuries at Birth remain stationary or have increased.

RECENT DEATH

McDERMOTT—DR. JOSEPH EDWARD MCDERMOTT, a practitioner, of Charlestown for 28 years, died suddenly of heart disease while making a professional call, February 2, 1929, aged 50.

A native of Charlestown he attended the high school, Boston Latin School and Harvard Medical School, where he received his M.D. in 1899. After serving an internship at the Carney Hospital, South Boston, he settled in Charlestown where he had practised since. Dr. McDermott was a popular physician. He held membership in the Massachusetts Medical Society and in the Boston City Club.

He is survived by his widow who was Miss Elizabeth Kenney of Charlestown.

NOTICE

REMOVALS

Dr. George S. Derby, Dr. J. Herbert Waite and Dr. Paul A. Chandler have moved their offices from 23 Bay State Road to 5 Bay State Road.

REPORTS AND NOTICES OF MEETINGS

THE CUTTER LECTURE ON PREVENTIVE MEDICINE

This lecture was delivered by Charles-Edward Amory Winslow, Anna M. R. Lauder Professor of Public Health Yale School of Medicine. Subject: Fresh Air and Ventilation in Relation to Human Health and Comfort. Wednesday, February 13, 1929 at the Harvard Medical School Amphitheatre Building E, 5 P. M.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be delivered in Boston and be free to the medical profession and the press.

The medical profession, medical and public health students, the press and others interested are cordially invited to attend.

THE BETH ISRAEL HOSPITAL AND THE GREATER BOSTON MEDICAL SOCIETY

A combined meeting of the Beth Israel Hospital and the Greater Boston Medical Society was held in the auditorium of the Beth Israel Hospital, Monday February 11, 1929 at 8:15 P. M. Dr. Alfred E. Cohn, Member of the Rockefeller Institute for Medical Research, spoke on "Hierarchies of Medicine".

NEW ENGLAND SECTION OF THE AMERICAN ACADEMY OF PHYSIOTHERAPY

At the Annual Meeting held February 6, 1929 the following named Officers were elected for the Year 1929:

President, Dr. William D. McFee, Boston.

Vice-President, Dr. Arthur L. Brown, Winchester.

Second Vice-President, Dr. George E. Deering, Worcester.

Secretary-Treasurer, Dr. Arthur H. Ring, Arlington.

Directors: Dr. Richard J. McCluskey, Mass., Dr. Herman A. Osgood, Mass., 3 years; Dr. Louis E. Mannix, Mass., Dr. Wm. H. Magill, R. I., 2 years; Dr. Robert E. Peck, Conn., Dr. Geo. E. Deering, Mass., 1 year.

It is the policy of the organization to elect to membership only Fellows in good standing in their State and National Society, and in the future to hold its Annual Meeting coincident with the Section of Roentgenology and Physiotherapy of the Massachusetts Medical Society.

THE MASSACHUSETTS TUBERCULOSIS LEAGUE

The Fourteenth Semi-Annual Meeting of the Massachusetts Tuberculosis League was held at Hotel Statler, Boston, on February 4th.

Representatives of the twenty-eight affiliated organizations of the League took part in a discussion at the morning session of the 1928 Christmas Seal Sale. Reports were received from the affiliated organizations of the success of the sale from all of the local associations from Berkshire County to Nantucket Island. Frank Kiernan, Executive Secretary of the League, presided.

At the luncheon meeting Dr. Frederick T. Lord, Acting President of the League, was in the chair. Dr. Edward O. Otis, Honorary President of the League, spoke on "Present Day Problems in the Tuberculosis Field". He stressed the importance of early diagnosis and attempts to solve the problem of high tuberculosis mortality rate in the age group fifteen to forty especially among young women.

Dr. George H. Bigelow, State Commissioner of Health, spoke on pending legislation now before the General Court. He commended the Bill introduced on petition of Professor Curtis M. Hilliard of Simmons College and a member of the Wellesley Board of Health. This Bill would make it possible for adjoining towns to unite in the employment of a full-time health officer to carry on health work on a unified basis. This has been done for a number of years by adjoining towns in the matter of school superintendencies with marked success.

Dr. Bigelow outlined the provisions of the Pasteurization Bill which would require all milk sold in communities of more than five thousand people to be either pasteurized or from tuberculous free cows.

Following the luncheon meeting the Board of Directors of the League met and approved the Seal Sale Contracts with the National Association and with the local affiliated organizations of the League for 1929.

Dr. Walter P. Bowers, speaking on behalf of the Massachusetts Medical Society, presented the matter of the pending Chiropractic Bill now before the General Court. Following the presentation of this matter by Dr. Bowers the Directors unanimously voted to go on record as opposing the passage of the Chiropractic Bill.

A grant of $400 in support of the research work of the National Tuberculosis Association was voted.

It was announced that a meeting of the affiliated organizations of the League who conduct summer health camps would be held at Hotel Bancroft, Worcester, on Monday, March 11th.

THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

The annual meeting was held Thursday, January 31 at the University Club, Trinity Place, Boston. After luncheon the President, Mr. John J. McGrath of Salem called the meeting to order and called for reports of the Committee. The Treasurer, Dr. Francis G. Curtis of Newton reported a satisfactory condition of the treasury. The report of the legislative committee was not submitted because the chairman, Dr. M. Victor Safford was called away before the opening of the business session. The officers elected for the ensuing year are:

President, Mr. John J. McGrath, Salem; First Vice-President, Dr. M. Victor Safford, Boston; Second Vice-President, Dr. J. U. Paquin, New Bedford; Secretary, Dr. Stephen L. Maloney, Boston; Treasurer, Dr. Francis G. Curtis, Newton; Executive Committee, Dr. E. H. Trowbridge, Worcester, Dr. L. A. Jones, Norfolk, J. R. Sackett, Springfield, G. H. Lennon, Haverhill, J. R. Glennon, New Bedford.

Professor S. C. Prescott explained the plans and purposes of the Public Health Institute which conducted courses last summer for those engaged in public health work. It is the object of this Institute to disseminate the latest information relating to mat-

ters of interest to public health workers but not to trade the fundamental principles to untrained persons. This instruction aims to bring about better comprehension of the problems before the State and City Departments of Public Health. In addition to these bodies the Institute expects the coöperation of the Association of Boards of Health and the Metropolitan Life Insurance Company. The sessions will last from June 24 through July 13. During the first week matters pertaining to sanitary inspection and laboratory procedures will be taken up. In the second week the problems of communicable diseases will be considered and during the third week education of the public will be the especial topic on the program. The program is now being prepared. Prospective students may not feel obliged to take all the courses but it is hoped that those needing further information will attend. Lectures will be given in the early forenoon to be followed by round table and experience discussions. In the afternoon there will be laboratory demonstrations or exercises which may be spoken of as clinics. Some of the exercises will be carried on away from the Institute as for example the South Department of the City Hospital, Dr. Benjamin White's laboratories of the State Department of Public Health and the Boston City Department of Health. If enough interest is shown this work will be carried on each year.

Professor C. M. Hilliard of Simmons College spoke on Union Health Districts and explained the details of this plan whereby two or more towns may unite to hire health officers. This plan is in operation in very many states.

The excellent county plan on the Cape was referred to with the explanation that the plan for union Health Districts does not apply because the county has united all towns in that region. It was explained that many small towns in Massachusetts are at present handicapped in being dependent on untrained laymen for health administration.

Dr. George H. Bigelow called attention to the meeting in Hartford of the New England Health Institute, April 22 to 24 and gave an instructive explanation of the public health matters before his department calling especial attention to information circulars setting forth facts about pasteurization of milk, and the statistical records of the epidemic in the western part of the state.

He amplified statements previously made about the union health districts endorsing the bill House 175. Brief mention was made of House 57 to prevent the invasion of tularemia, House 9 providing for the dissemination of information, House 202 for extending the provision for vaccination to private school pupils, House 58 relating to adulterated or misbranded foods, House 291 for milk inspection in Berkshire County.

Emphasis was given to the logic of repealing the state subsidy for the care of tuberculosis patients, because under the plans which are being developed counties will take care of those cases within their own districts.

House 330 providing for the licensing of hospitals was approved and comments were submitted on many less important measures. Dr. Scamman of the State Department of Public Health opened the discussion and gave a history of the smallpox epidemic in Gardner and presented statistics.

Dr. Benjamin White was authorized to prepare directions dealing with the distribution of biologic products.

Much interest was shown in the subjects presented.

SOUTH END NEIGHBORHOOD MEDICAL CLUB

The next regular meeting of the South End Neighborhood Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, February 19, 1929, at 12 noon.

The speaker will be F. Gorham Brigham, M. D., Physician, New England Deaconess Hospital, 16 Deaconess Road, Brookline, and his subject: "Dyspepsia —What Is It?" All physicians are cordially invited to attend. The usual luncheon will follow.

NEW ENGLAND ASSOCIATION FOR PHYSICAL THERAPEUTICS

The next meeting of the New England Association for Physical Therapeutics will be held at the Boston Medical Library on the evening of February 20, at 8 o'clock. A paper will be read by Gilbert Haggart, M. D. on "Physiotherapy in the Treatment of Fractures".

MASSACHUSETTS PSYCHIATRIC SOCIETY

The next meeting of the Massachusetts Psychiatric Society will be held at the Boston Psychopathic Hospital, Wednesday evening, February 27th, at eight o'clock. The program is as follows:

Professor Dorothy Swain Thomas, Teachers' College, New York—"Some New Techniques for Studying Social Behavior."

Doctor C. Macfie Campbell—"The Study of Environmental Factors in the Schizophrenic Group."

BERKSHIRE COUNTY MEDICAL SOCIETY

The next meeting of the Berkshire County Medical Society will be held at Pittsfield, February 20, 1929. The speaker of the evening will be Dr. William P. Healy of New York City. His subject is, "Recent Advances in Gynecology with Special Reference to Diagnosis and to Cancer of the Uterus".

HUGH DOWNEY, M.D., *Secretary.*

BOSTON MEDICAL HISTORY CLUB

Boston Medical Library, 8 Fenway, Monday evening, February 18 at 8:15 o'clock.

A pioneer New England Surgeon, Charles F. Painter, M.D. Recent accessions to the Bullard Collection, James F. Ballard. The first medical book printed in the United States, Miss Blake Beem.

Light refreshments.

JAMES F. BALLARD, *Secretary.*

THE BOSTON CITY HOSPITAL

PRELIMINARY NOTICE OF CLINICAL MEETING

The Boston City Hospital will postpone its regular clinical monthly meeting, scheduled for Saturday, February 23, on March 2 at 11 A. M. in the Cheever Surgical Amphitheatre. (Owing to the fact that February 23 is in a holiday week-end.) There will be a detailed program contributed by the services of Drs. Larrabee, Minot, Cobb, Loder and Kimpton.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The next meeting of the New England Ophthalmological Society will be held at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston, on Tuesday evening, February 19, 1929, at eight o'clock.

Clinical cases will be shown at 7:45 p. m. Members are requested to be present at this time to see the cases.

REPORT OF CLINICAL CASES

1. Infected Prothesis, Dr. W. D. Rowland.
2. Congenital Tortuosity of Retinal Vessels, Dr. Anthony.
3. Arterial Pulsation in Normal Tension Eye, Dr. George S. Derby.
4. Extreme Hypermetropia, Microphthalmia and Glaucoma, Dr. Edwin B. Dunphy.
5. Optic Atrophy from Old Embolus, Dr. Edwin B. Dunphy.

PAPER

Ocular Lesions Caused by Intracranial Hemorrhage, Dr. Alexander MacDonald of Toronto.

At the annual meeting, January 15, 1929, the following officers were elected:

President, Dr. W. Holbrook Lowell.

Vice-President, Dr. Sylvester J. Beach.

Secretary, Dr. Edwin B. Dunphy.

E. B. DUNPHY, *Secretary.*

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The clinical conference of the New England Hospital for Women and Children, Dimock Street, Roxbury, will be held on Thursday, Feb. 21, at 8 p. m. at the hospital.

PROGRAM

Glaucoma, Dr. Maud Carvill.

The Medical Management of Some Gastro-intestinal Conditions, Dr. Sarah M. Jordan.

A Pediatric Subject, Speaker and topic to be announced.

ALICE H. BIGELOW, *Secretary.*

SOCIETY MEETINGS

Combined Meetings of the Boston Medical Library, the Suffolk District Medical Society, the Middlesex South District Medical Society and the Norfolk District Medical Society (at Boston Medical Library at 8:15)

February 27, 1929—Medical Section. "Some Relations of Diet to Fat Formation in the Body," Dr. Lafayette B. Mendel, Yale University Medical School.

March 27, 1929—Meeting in association with Middlesex South District Medical Society. Clinical and Experimental Studies of Obstructing Jaundice and Its Complications. Dr. Waltman Walters, Mayo Clinic.

April 24, 1929—Annual meeting. Speaker, Dr. Walton Martin, New York City. Title to be announced later.

The medical profession is cordially invited to attend all these meetings.

February 14 — Massachusetts General Hospital Staff Meeting. Detailed notice appears on page 311, issue of February 7.

February 18—Boston Medical History Club. Detailed notice appears on page 358.

February 19—South End Neighborhood Medical Club. Detailed notice appears on page 358.

February 19—New England Ophthalmological Society. Complete notice appears elsewhere on this page.

February 20—New England Association for Physical Therapeutics. Complete notice appears on page 358.

February 21—New England Hospital for Women and Children. Complete notice appears elsewhere on this page.

February 27—Massachusetts Psychiatric Society. Complete notice appears on page 358.

March 2—The Boston City Hospital (Preliminary Notice of Clinical Meeting). Detailed notice appears on page 358.

March 25, 26, 27—American Association for the Study of Goiter. Detailed notice appears on page 213, issue of January 24.

June 13—International Hospital Congress. Complete notice appears on page 212, issue of January 24.

DISTRICT MEDICAL SOCIETIES

Barnstable District Medical Society

Schedule of Meetings: May 2, 1929.

Berkshire District Medical Society

February 20—Complete notice appears on page 358.

Bristol North District Medical Society

April 18, 1929—Spring meeting.

Essex North District Medical Society

May 1, 1929 (Wednesday)—Annual meeting at Lawrence General Hospital, One Garden Street, Lawrence, at 12:30 P. M. (Telephone 5156.)

May 2, 1929 (Thursday)—Censors meet at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. (Tel. 3430.)

Candidates should present their diplomas one week in advance to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence.

Essex South District Medical Society

March 6, 1929 (Wednesday)—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M. Symposium on Pneumonia. Speakers: Dr. Reginald Fitz, Diagnosis. Dr. Fred Lord, Treatment. Dr. William H. Robie, Heart in Pneumonia. Discussion from the floor.

RALPH E. STONE, M.D., Secretary.

Franklin District Medical Society

Meetings will be held on the second Tuesday of March and May.

Hampshire District Medical Society

March 13, 1929—Address by Dr. George E. Gage, Professor of Bacteriology and Physiology at the Massachusetts State College.

Middlesex East District Medical Society

The following schedule of meetings has been arranged for the coming year:

March—Reading.
May—Melrose.

Subjects and speakers to be arranged by committees in each city or town.

Middlesex North Medical Society

The annual meeting will be held the last Wednesday in April.

Middlesex South District Medical Society

March 27, 1929—Joint meeting with the Suffolk and Norfolk Districts.

April, 1929—Annual meeting. Definite date to be announced later.

Norfolk District Medical Society

Below are the proposed meetings of the Norfolk District Medical Society for the 1928-29 Season. The schedule below will be adhered to as strictly as possible. The carrying out of the proposed plan will, of course, depend upon the acceptances of invitations extended to the speakers. Minor changes may be necessary.

February 25—Roxbury Masonic Temple. Dr. W. R. Ohler. Subject to be announced. Discussion to be opened by Dr. A. A. Hornor.

March 29 — Roxbury Masonic Temple. Subject and speakers to be announced.

May—Annual meeting program to be announced.

The Censors of the Society meet May 9, 1929, at the Roxbury Masonic Temple, Warren Street, Roxbury, at 4 P. M., for the examination of candidates.

Plymouth District Medical Society

March meeting at the Moore Hospital, Brockton, Mass., March 21st, program to be announced later.

April meeting at the Commercial Club, Brockton, April 18th, at 6 P. M. Annual Oration by Dr. Ralph C. McLeod, Orator; dinner.

Suffolk District Medical Society

See Combined Meetings in previous column.

Worcester District Medical Society

March 13, 1929—Worcester City Hospital. Dedication of New Nurses' Home. Speaking program to be announced.

April 10, 1929—Grafton State Hospital. Program to be announced.

May 8, 1929—Annual meeting. Worcester Country Club.

Worcester North District Medical Society

Annual meeting the fourth Tuesday in April.

BOOK REVIEWS

Diseases of the Nervous System: A Text-book of Neurology and Psychiatry. By SMITH ELY JELLIFFE, M.D., Ph.D., and WILLIAM A. WHITE, M.D. Fifth edition. Lea & Febiger, Philadelphia, 1929. Price $9.50. xx + 1174 pages.

This text-book of neurology and psychiatry has rightfully become one of the leading books on the subject in America. The book, first appearing in 1915, hardly needs another introduction to the medical profession, so firmly has it become intrenched in schools and hospitals. The fifth edition has been rigorously revised and much that is new has been added, especially to those sections dealing with the vegetative nervous system and the endocrine disorders. The authors' outlook on disease of the nervous system is broad; no other book gives so much of the newer researches. As they say in the preface, "the accent in this, as in previous editions, is toward a scientific curiosity in solving riddles heretofore insoluble. We have preferred to tell the student, the practitioner, and the specialist as well, what little is definitely known, and how great is the territory still to be explored and conquered, rather than to be satisfied with a simple recital of the static, the known, and the dead past."

The form, illustrations, index and most chapter headings remain unchanged. A few minor errors have been corrected. There is no reason to believe that this new edition will not hold its old friends and make new ones.

The Practical Medicine Series: General Medicine—Series 1928. The Year Book Publishers, Chicago. Pp. 832. Price $3.00.

This volume is one of a series of eight year books issued at various intervals during each year. They cover the entire field of recent medicine and surgery, and each volume is complete on the subject of which it treats for the year prior to the time of its publication. The present volume comprises abstracts of significant papers in the following subjects: Infectious Diseases, Diseases of the Chest, Diseases of the Blood and Blood-Making Organs, Diseases of the Kidney, Diseases of the Heart and Blood Vessels, Diseases of the Gastro-Intestinal Tract, and Diseases of Metabolism. The material is excellent, the printing good, but the reproduction of x-ray plates leaves much to be desired. Nevertheless it is a handy volume for the busy practitioner.

Fowler: *A Dictionary of Modern English Usage.* Oxford: At the Clarendon Press. London: Humphrey Milford, 1927.

-IC (AL). A great many adjectives appear with alternative forms of *-ic & -ical.* Often the choice between them on any particular occasion is indifferent, so far as the writer's immediate object is concerned. To those who can afford time to think also of the interests of the English language it may be suggested that there are two desirable tendencies to be assisted.

The first of these is DIFFERENTIATION. There are many pairs in *-ic & -ical*, each form well established & in constant use, but with a difference of meaning either complete of incipient. The final stage of differentiation is seen in *politic & political*, which are not even content, as usual, to share an adverb in -ically, but make *politicly* by the side *politically*. Between *economic & economical* the distinction is nearly as clear, though the seal has not been set upon it by a double provision of adverbs; most writers are now aware that the two words mean different things, and have no difficulty in choosing the one required. This can hardly be said of *comic(al)*, the the short form of which is often made to do the other's work. And so the differentiations tail off into mere incipiency. Every well established differentiation adds to the precision and power of the language; every observance of an incipient one helps it on the way to establishment, and every disregard of it checks it severely; it is therefore clear that writers have a responsibility in the matter.

The second laudable tendency is that of clearing away the unnecessary. When two forms coexist, and there are not two senses for them to be assigned to, it is clear gain that one should be got rid of. The scrapping process goes on slowly by natural selection; sometimes the determining cause is apparent, as when *hysteric, cynic, and fanatic*, give way to *hysterical, cynical and fanatical*, because they have themselves acquired a new function as nouns; sometimes the reasons are obscure, as when *electric and dynamic* supersede the longer forms while *hypothetic and botanic* are themselves superseded. But that one or other should prevail is a gain; and it is a further gain if the process can be quickened. With this end in view, it is stated in this dictionary, about many *-ic(al)* words, which appears to be the winning side, that writers may be encouraged to espouse it.

"Serum Diagnosis by Complement-Fixation." By JOHN A. KOLMER, M. S., M.D., DR. P.H., D.Sc., LL.D. Lea & Febiger, Philadelphia. 1928. Price $7.00.

The book, of five hundred and eighty-three pages, is based almost entirely upon the author's wide and varied experience with complement-fixation reactions. Most of the text is devoted to the practical application of the Bordet Gengou phenomenon (Wassermann reaction) in the serum diagnosis of syphilis.

Although the book is addressed to serologists, laboratory technicians, and clinicians, it can appeal, for the most part, only to serologists because of the background required for an intelligent comprehension of the subject. There are the inevitable repetitions and errors which always creep into a first edition.

The book is divided into four part: (1) Principles of Serum Hemolysis and Complement-Fixation, (2) Principles of Complement-Fixation Technique, (3) Technique of Complement-Fixation Methods, and (4) Clinical Application of Complement-Fixation Tests. Throughout the fifty-three chapters of the book, explicit directions are given for the technique of the tests described, and in particular for the technique of the author's own method for conducting the Wassermann reaction.